


# PRODUCT / PROCESS CHANGE NOTIFICATION

## 1. PCN basic data

1.1 Company	 STMicroelectronics International N.V
1.2 PCN No.	ADG/23/14380
1.3 Title of PCN	Capacity extension with 8 inches conversion production line for STTH25M06B-TR - STTH25M06FP & STTH30M06SPF
1.4 Product Category	STTH25M06B-TR STTH25M06FP STTH30M06SPF
1.5 Issue date	2023-11-27

## 2. PCN Team

2.1 Contact supplier	
2.1.1 Name	ROBERTSON HEATHER
2.1.2 Phone	+1 8475853058
2.1.3 Email	heather.robertson@st.com
2.2 Change responsibility	
2.2.1 Product Manager	Stephane CHAMARD
2.1.2 Marketing Manager	Philippe LEGER
2.1.3 Quality Manager	Jean-Paul REBRASSE

## 3. Change

3.1 Category	3.2 Type of change	3.3 Manufacturing Location
General	Wafer diameter modification	ST Microelectronics Tours (France)

## 4. Description of change

	Old	New
4.1 Description	6 inches wafer fab line	6 inches wafer fab line and 8 inches wafer fab line
4.2 Anticipated Impact on form,fit, function, quality, reliability or processability?	no	

## 5. Reason / motivation for change

5.1 Motivation	STMicroelectronics has decided to expand the manufacturing capacity of ultrafast diodes.
5.2 Customer Benefit	CAPACITY INCREASE

## 6. Marking of parts / traceability of change

6.1 Description	Traceability of the change will be ensured by Finished Good/Type print on carton labels. The second to last digit will be \$ for 8 inches Finished Good code.
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## 7. Timing / schedule

7.1 Date of qualification results	2023-10-30
7.2 Intended start of delivery	2024-03-22
7.3 Qualification sample available?	Upon Request

## 8. Qualification / Validation

8.1 Description	14380 23030QRP.pdf		
8.2 Qualification report and qualification results	Available (see attachment)	Issue Date	2023-11-27

## 9. Attachments (additional documentations)

14380 Public product.pdf  
14380 PCN 8 inches conversion for STTHxxM06xx.pdf  
14380 23030QRP.pdf

10. Affected parts		
10. 1 Current		10.2 New (if applicable)
10.1.1 Customer Part No	10.1.2 Supplier Part No	10.1.2 Supplier Part No
	STTH25M06B-TR	
	STTH25M06FP	
	STTH30M06SPF	

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# Qualification Report

## Qualification of conversion 8 inches for STTH25M06FP - STTH25M06B-TR - STTH30M06SPF

General Information		Locations	
<b>Product Line</b>	<i>Rectifiers</i>	<b>Wafer Fab</b>	<i>ST Tours – France</i>
<b>Product Description</b>	<i>600V, 25A ultrafast high voltage diode 600V, 30A ultrafast high voltage diode</i>	<b>Assembly Plant</b>	<i>ST Shenzhen – China Subcontractor (994X) - China</i>
<b>Product Perimeter</b>	<i>STTH25M06FP - STTH25M06B-TR - STTH30M06SPF</i>	<b>Reliability Lab</b>	<i>ST TOURS – FRANCE</i>
<b>Product Group</b>	<i>ADG</i>		
<b>Product Division</b>	<i>Discrete &amp; Filter</i>		
<b>Packages</b>	<i>TO-220FPAC – DPAK – TO-3PF</i>		
<b>Maturity level step</b>	<i>MAT 30</i>	<b>Reliability Assessment</b>	<i>PASS</i>

### DOCUMENT INFORMATION

Version	Date	Pages	Prepared by	Approved by	Comments
1	October 25, 2023	15	Elisabeth PREVOST	Christophe Goin <small>Digitally signed by Christophe Goin Date: 2023.11.16 15:58:26 +01'00'</small>	Qualification of conversion 8 inches for STTH25M06FP - STTH25M06B-TR - STTH30M06SPF

Note: This report is a summary of the qualification trials performed in good faith by STMicroelectronics in order to evaluate the potential risks during the product life using a set of defined test methods.  
This report does not imply for STMicroelectronics expressly or implicitly any contractual obligations other than as set forth in STMicroelectronics general terms and conditions of Sale. This report and its contents shall not be disclosed to a third party without previous written agreement from STMicroelectronics.

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## 1 APPLICABLE AND REFERENCE DOCUMENTS

Document reference	Short description
JESD 47	Stress-Test-Driven Qualification of Integrated Circuits
JESD 94	Application specific qualification using knowledge based test methodology
JESD 22	Reliability test methods for packaged devices
MIL-STD-750C	Test method for semiconductor devices

## 2 GLOSSARY

HTRB	High Temperature Reverse Bias
PD	Physical Dimensions
SS	Sample Size

### **3 RELIABILITY EVALUATION OVERVIEW**

#### **3.1 Objectives**

The objective of this report is to qualify conversion 8 inches for STTH25M06FP - STTH25M06B-TR - STTH30M06SPF embedded in TO-220FPAC – DPAK – TO-3PF.

Product	Description	Package	Assembly Location
STTH25M06FP	600 V, 25 A ultrafast high voltage diode	TO-220FPAC	ST Shenzhen - China.
STTH25M06B-TR		DPAK	ST Subcontractor (994x) - China
STTH30M06SPF	600 V, 30 A ultrafast high voltage diode	TO-3PF	

The reliability test methodology used follows the JESD47: « Stress Test driven Qualification Methodology.

The reliability tests ensuing are:

- HTRB to evaluate the risk of contamination from the resin and the assembly process versus the die layout sensitivity.

For some tests, similarity methodology is used. See 5.1 “comments” for more details about similarities.

#### **3.2 Conclusion**

Qualification Plan requirements have been fulfilled without exception. Reliability tests have shown that the devices behave correctly against environmental tests (no failure). Moreover, the stability of electrical parameters during the accelerated tests demonstrates the robustness of the products and safe operation, which is consequently expected during their lifetime.

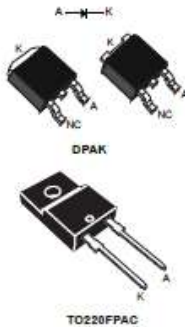
## 4 DEVICE CHARACTERISTICS

### 4.1 Device description


**STTH25M06**

Datasheet

600 V, 25 A ultrafast high voltage diode



#### Features

- Ultrafast recovery, soft recovery
- Low power losses at high switching frequency operations
- Low leakage current
- High junction temperature
- High overcurrent capability
- ECOPACK2 compliant

#### Applications

- PFC
- Boost diode
- LLC clamping diode

#### Description

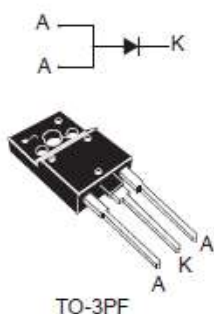
The **STTH25M06** is an ultrafast recovery power rectifier especially suited for boost or LLC clamping circuits working at high switching frequencies in heavy duty applications such as air conditioning equipment or telecom power supplies.

Designed with the latest ST's ultrafast technology, this 600 V 25 A diode in DPAK and TO-220FPAC has a robust behavior against electrostatic discharge and high overcurrent capability.

Product status	
STTH25M06	
Product summary	
Symbol	Value
$I_{F(AV)}$	25 A
$V_{RRM}$	600 V
$t_{rr(typ.)}$	25 ns
$T_{j(max.)}$	175 °C
$V_F(typ.)$	1.6 V



## 600 V, 30 A ultrafast high voltage diode



### Features

- Ultrafast recovery, soft recovery
- Low power losses at high switching frequency operations
- Low leakage current
- High junction temperature
- High overcurrent capability
- ECOPACK2 compliant
- Insulated package TO-3PF:
  - Insulated voltage: 2000 V<sub>RMS</sub>

### Applications

- PFC
- Boost diode
- LLC clamping diode

### Description

The STTH30M06S is an ultrafast recovery power rectifier especially suited for boost or LLC clamping circuits working at high switching frequencies in heavy duty applications such as air conditioning equipment or telecom power supplies.

Designed with the latest ST's ultrafast technology, this 600 V 30 A diode in TO-3PF has a robust behavior against electrostatic discharge and high overcurrent capability.

Product status	
STTH30M06S	
Product summary	
Symbol	Value
$I_{F(AV)}$	30 A
$V_{RRM}$	600 V
$t_{rr(typ.)}$	25 ns
$T_{j(max.)}$	175 °C
$V_F(typ.)$	1.7 V

## 4.2 Construction Note

	<b>STTH25M06FP</b>
<b>Wafer/Die fab. information</b>	
Wafer fab manufacturing location	ST Tours – France
Technology / Process family	600 V, 25 A ultrafast high voltage diode
<b>Wafer Testing (EWS) information</b>	
Electrical testing manufacturing location	ST Tours – France
<b>Assembly information</b>	
Assembly site	ST Shenzhen - China
Package description	TO-220FPAC
Molding compound	ECOPACK®2
<b>Final testing information</b>	
Testing location	ST Shenzhen - China

	<b>STTH25M06B-TR</b>
<b>Wafer/Die fab. information</b>	
Wafer fab manufacturing location	ST Tours – France
Technology / Process family	600 V, 25 A ultrafast high voltage diode
<b>Wafer Testing (EWS) information</b>	
Electrical testing manufacturing location	ST Tours – France
<b>Assembly information</b>	
Assembly site	Subcontractor (994x) - China
Package description	DPAK
Molding compound	ECOPACK®2
<b>Final testing information</b>	
Testing location	Subcontractor (994x) - China

	<b>STTH30M06SPF</b>
<b>Wafer/Die fab. information</b>	
Wafer fab manufacturing location	ST Tours – France
Technology / Process family	600 V, 30 A ultrafast high voltage diode
<b>Wafer Testing (EWS) information</b>	
Electrical testing manufacturing location	ST Tours – France
<b>Assembly information</b>	
Assembly site	Subcontractor (994x) - China
Package description	TO-3PF
Molding compound	ECOPACK®2
<b>Final testing information</b>	
Testing location	Subcontractor (994x) - China

## 5 TESTS PLAN AND RESULTS SUMMARY

### 5.1 Test vehicles

Lot #	Part Number	Package	Comments
L1	STTH25M06FP	TO-220FPAC	1 <sup>st</sup> Qualification lot

Detailed results in below chapter will refer to these references.

### 5.2 Test plan

Stress	Abrv	Reference	Lot	SS	Comments	Test plan
Pre and Post-Stress Electrical Test	TEST	User specification or supplier's standard Specification	All qualification parts tested per the requirements of the appropriate device specification.			-
Pre-conditioning	PC	J-STD-020 JESD22-A113	All qualification parts tested per the requirements of the appropriate device specification.		As per targeted MSL Not applicable for PTH and WLCSP without coating	-
MSL research	MSL	J-STD-020	-	-	Not applicable for PTH and WLCSP without coating	-
External Visual	EV	JESD22B-101	All qualification parts tested per the requirements of the appropriate device specification.		Done during Assembly → Test & Finish inspection	-
Parametric Verification	PV	User specification	-	-		-
High Temperature Reverse Bias	HTRB	MIL-STD-750-1 M1038 Method A (for diodes, rectifiers and Zeners) M1039 Method A (for transistors)	L1	77	WBI after HTRB applicable only for dissimilar metal (wire/meta) in case of no Cu wire	X
AC blocking voltage	ACBV	MIL-STD-750-1 M1040 Test condition A	-	-	Required for Thyristor only. Alternative to HTRB	-
High Temperature Forward Bias	HTFB	JESD22 A-108	-	-	Not required, applicable only to LEDs Alternative to HTRB	-
High Temperature Operating Life	HTOL		-	-	Covered by HTRB or ACSV	-
Steady State Operational	SSOP	MIL-STD-750-1 M1038 Test condition B	-	-	Required for Voltage Regulator (Zener) only.	-
High Temperature Gate Bias	HTGB	JESD 22A-108	-	-	Required for Power MOSFET – IGBT only.	-
High Temperature Storage Life	HTSL	JESD22 A-103	-	-	Covered by HTRB	-
Temperature Humidity Storage	THS	JESD22 A-118	-	-	Covered by H3TRB	-
Temperature Cycling	TC	JESD22A-104	-	-		-
Temperature Cycling Hot Test	TCHT	JESD22A-104	-	-	Required for Power MOSFET – IGBT only.	-
Temperature Cycling Delamination Test	TCDT	JESD22A-104 J-STD-035	--		Required for Power MOSFET – IGBT only. Alternative to TCHT	-

Stress	Abrv	Reference	Lot	SS	Comments	Test plan
Wire Bond Integrity	WBI	MIL-STD-750 Method 2037		--	For dissimilar metal bonding systems only	-
Unbiased Highly Accelerated Stress Test	UHAST	JESD22A-118 or A101	-	-	Required for SCR/TRIAC RECTIFIER and Protection devices	-
Autoclave	AC	JESD22A-102	-	-	Alternative to UHAST	-
Highly Accelerated Stress Test	HAST	JESD22A-110	-	-	Covered by H3TRB (same failure mechanisms activation).	-
High Humidity High Temperature Reverse Bias	H3TRB	JESD22A-101	-	-	Alternative to HAST	-
High Temperature High Humidity Bias	HTHHB	JED22A-101	-	-	Not required, LED only	-
Intermittent Operational Life / Thermal Fatigue	IOL	MIL-STD-750 Method 1037	-	-	For power devices, Not required for Transient Voltage Suppressor (TVS) parts	-
Power and Temperature Cycle	PTC	JED22A-105	-	-	For power devices, Not required for Transient Voltage Suppressor (TVS) parts Perform PTC if $\Delta T_j > 100^\circ\text{C}$ cannot be achieved with IOL Alternative to IOL	-
ESD Characterization	ESD HBM	AEC Q101-001 and 005	-	-		-
ESD Characterization	ESD CDM	AEC Q101-001 and 005	-	-		-
Destructive Physical Analysis	DPA	AEC-Q101-004 Section 4	-	-	After H3TRB and TC	-
Physical Dimension	PD	JESD22B-100	-	-		-
Terminal Strength	TS	MIL-STD-750 Method 2036	-	-	Required for leaded parts only	-
Resistance to Solvents	RTS	JESD22B-107	-	-	Not applicable for Laser Marking	-
Constant Acceleration	CA	MIL-STD-750 Method 2006	-	-	Required for hermetic packaged parts only.	-
Vibration Variable Frequency	VVF	JESD22B-103	-	-	Required for hermetic packaged parts only.	-
Mechanical Shock	MS	JESD22 B-104	-	-	Required for hermetic packaged parts only.	-
Hermeticity	HER	JESD22A-109	-	-	Required for hermetic packaged parts only.	-
Resistance to Solder Heat	RSH	JESD22 A-111 (SMD) B-106 (PTH)	-	-		-
Solderability	SD	J-STD-002 JESD22B102	-	-		-
Dead Bug Test	DBT	ST Internal specification	-	-	Mandatory for SMD package Data collection for PTH package	-
Thermal Resistance	TR	JESD24-3, 24-4, 24-6 as appropriate	-	-	Required in case of process change. Not applicable to protection device as no limit specified in the datasheet	-
Wire Bond Strength	WBS	MIL-STD-750 Method 2037	-	-	Covered during workability trials	-
Bond Shear	BS	AEC-Q101-003	-	-	Covered during workability trials	-
Die Shear	DS	MIL-STD-750 Method 2017	-	-	Not Applicable to parts with solder paste die attach	-
Unclamped Inductive Switching	UIS	AEC-Q101-004 section 2	-	-	Required for Power MOS and internally clamped IGBTs only	-
Dielectric Integrity	DI	AEC-Q101-004 section 3	-	-	Required for Power MOSFET – IGBT only.	-
Short Circuit Reliability Characterization	SCR	AEC-Q101-006	-	-	Required for smart power parts only	-
Whisker Growth Evaluation	WG	AEC-Q005 JESD201	-	-	Not applicable for resin change	-
Early Life Failure Rate	ELFR	JESD74	-	-	Recommended for new techno development in case of identified failure mechanism	-

Stress	Abrv	Reference	Lot	SS	Comments	Test plan
Functional Test (in rush, di/dt,)	FT	Internal specification	-	-		-
Repetitive Surge	RS	Internal specification	-	-	Required for protection devices only.	-
Low Temperature Storage	LTS	JESD-22 A119: 209	-	-	AQG324 test for Modules	-
Thermal shock test	TST	JESD22-A104	-	-	AQG324 test for Modules	-
Power Cycling (seconds)	PC sec	MIL-STD750-1 Method1037	-	-	AQG324 test for Modules	-
Power Cycling (minutes)	PC min	MIL-STD750-1 Method1037	-	-	AQG324 test for Modules	-
Mechanical shock	MS	IEC 600068-2-27	-	-	AQG324 test for Modules	-
Vibration	V	IEC60068-2-6	-	-	AQG324 test for Modules	-

### 5.3 Results summary

Test	PC	Std ref.	Conditions	Steps / Duration	SS	Failure / SS
						L1
HTRB	N	MIL-STD-750-1 M1038 Method A	Junction Temperature=150°C Voltage=480V	1Khrs	77	0/77

Note 1: These data are indicative values given as information only. Please note that the ST guarantee is the compliance of the products to the ST datasheet. Parameters distributions are not considered as a ST guarantee under any circumstances.

Please note that these electrical parameters are 100% tested at 25°C at Final stage of back-end manufacturing before deliveries to customers.”

## 6 ANNEXES

### 6.1 Parametric Verification

Results on **STTH25M06FP** product:

TEST	IR	IR	VF	VF	VF	VF
EQUIPMENT						
Condition 1	25°C	125°C	25°C	25°C	150°C	150°C
Condition 2	VR=600V	VR=600V	IF=15A	IF=25A	IF=15A	IF=25A
Condition 3						
Min. Datasheet						
Typ. Datasheet		70µA	2.1V	2.5V	1.3V	1.6V
Max. Datasheet	60µA	800µA		3.4V		2.0V
UNIT	µA	µA	V	V		
N	30	30	30	30	30	30
Min	0,041	21,5	1,889	2,203	1,207	1,438
Max	1,375	28,5	2,048	2,404	1,267	1,518

TEST	VR	VR	VR
EQUIPMENT			
Condition 1	25°C	125°C	150°C
Condition 2	IR=1mA	IR=1mA	IR=1mA
Condition 3			
Min. Datasheet	600	600	600
Typ. Datasheet			
Max. Datasheet			
UNIT	V	V	V
N	30	30	30
Min	652,8	699,9	705,7
Max	678,3	728,4	736,6

## 6.2 Physical Dimensions

### Dimensional report for TO-220FPAC package at ST Shenzhen

Figure 17. TO-220FPAC package outline

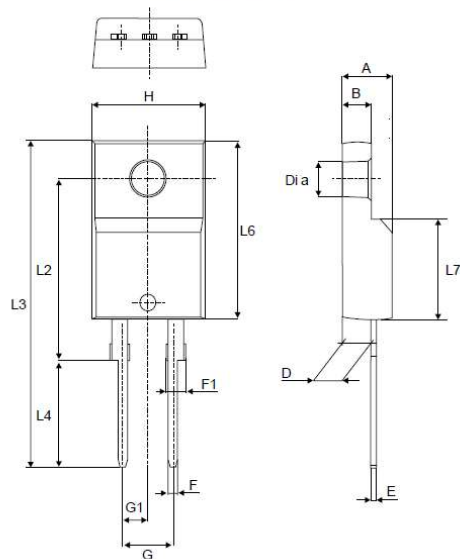


Table 6. TO-220FPAC package mechanical data

Ref.	Dimensions			
	Millimeters		Inches (for reference only)	
	Min.	Max.	Min.	Max.
A	4.40	4.60	0.173	0.181
B	2.5	2.7	0.098	0.106
D	2.5	2.75	0.098	0.108
E	0.45	0.70	0.018	0.027
F	0.75	1	0.030	0.039
F1	1.15	1.70	0.045	0.067
G	4.95	5.20	0.195	0.205
G1	2.4	2.7	0.094	0.106
H	10	10.4	0.393	0.409
L2	16 typ.		0.63 typ.	
L3	28.6	30.6	1.126	1.205
L4	9.8	10.6	0.386	0.417
L6	15.9	16.4	0.626	0.646
L7	9.00	9.30	0.354	0.366
Diam	3.00	3.20	0.118	0.126

Cote	A	B	D	E	F	F1	G	G1	H	L2	L3	L4	L6	L7	Dia
MIN	4,4	2,5	2,5	0,45	0,75	1,15	4,95	2,4	10	16	28,6	9,8	15,9	9	3
TYP															
MAX	4,6	2,7	2,75	0,7	1	1,7	5,2	2,7	10,4		30,6	10,6	16,4	9,3	3,2
MIN	4,42	2,50	2,50	0,50	0,80	1,26	5,04	2,50	10,12	16,00	29,61	10,10	15,90	9,12	3,12
MAX	4,47	2,58	2,60	0,50	0,81	1,40	5,11	2,63	10,28	16,00	29,87	10,30	16,24	9,20	3,19
valeur moyenne	4,448	2,545	2,549	0,500	0,801	1,370	5,069	2,532	10,232	16,000	29,678	10,175	16,159	9,159	3,162



## Dimensional report for TO-3PF package at Subcontractor (994x)

Figure 13. TO-3PF package outline

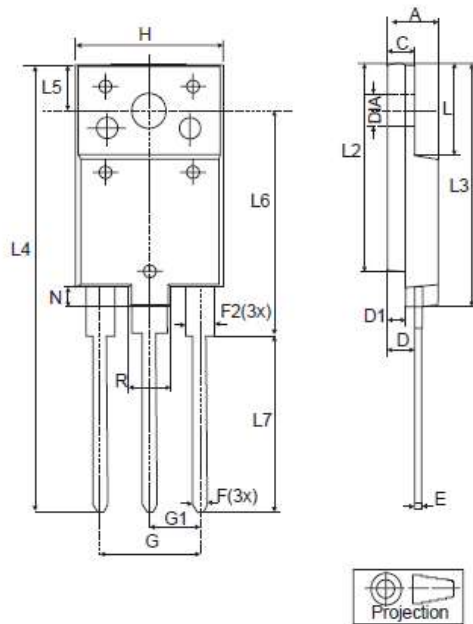


Table 5. TO-3PF mechanical data

Dim.	mm		
	Min.	Typ.	Max.
A	5.30		5.70
C	2.80		3.20
D	3.10		3.50
D1	1.80		2.20
E	0.80		1.10
F	0.65		0.95
F2	1.80		2.20
G	10.30		11.50
G1		5.45	
H	15.30		15.70
L	9.80	10.00	10.20
L2	22.80		23.20
L3	26.30		26.70
L4	43.20		44.40
L5	4.30		4.70
L6	24.30		24.70
L7	14.60		15.00
N	1.80		2.20
R	3.80		4.20
Dia	3.40		3.80

pce	Cote A	Cote C	Cote D	CoteD1	CoteE	Cote F	CoteF2	Cote G	Cote G1	Cote H	Cote L	Cote L2	Cote L3	Cote L4	Cote L5	Cote L6	Cote L7	Cote N	Cote R	Diam
MIN	5,3	2,8	3,1	1,8	0,8	0,65	1,8	10,3	5,45	15,3	9,8	22,8	26,3	43,2	4,3	24,3	14,6	1,8	3,8	3,4
TYP																				
MAX	5,7	3,2	3,5	2,2	1,1	0,95	2,2	11,5		15,7	10,2	23,2	26,7	44,4	4,7	24,7	15	2,2	4,2	3,8
MOY	5,52	3,02	3,26	1,99	0,89	0,86	2,05	10,95	5,46	15,50	9,97	23,00	26,51	43,87	4,34	24,51	14,77	1,99	3,99	3,59
MIN	5,49	3,00	3,21	1,97	0,86	0,81	1,99	10,91	5,43	15,48	9,94	22,92	26,42	43,72	4,33	24,46	14,72	1,97	3,92	3,57
MAX	5,55	3,04	3,30	2,00	0,90	0,88	2,09	10,99	5,50	15,53	10,00	23,09	26,55	43,94	4,36	24,56	14,83	2,00	4,02	3,61

## Dimensional report for DPAK package at Subcontractor (994x)

Figure 15. DPAK package outline

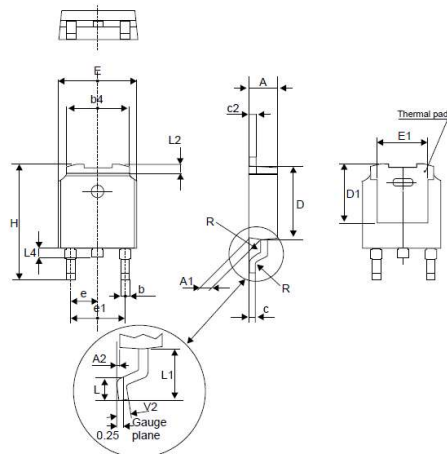


Table 5. DPAK package mechanical data

Ref.	Dimensions			
	Millimeters		Inches (for reference only)	
	Min.	Max.	Min.	Max.
A	2.18	2.40	0.085	0.094
A1	0.90	1.10	0.035	0.043
A2	0.03	0.23	0.001	0.009
b	0.64	0.90	0.025	0.035
b4	4.95	5.46	0.194	0.215
c	0.46	0.61	0.018	0.024
c2	0.46	0.60	0.018	0.023
D	5.97	6.22	0.235	0.244
D1	4.95	5.60	0.194	0.220
E	6.35	6.73	0.250	0.265
E1	4.32	5.50	0.170	0.216
e	2.286 typ.		0.090 typ.	
e1	4.40	4.70	0.173	0.185
H	9.35	10.40	0.368	0.409
L	1.0	1.78	0.039	0.070
L2		1.27		0.050
L4	0.60	1.02	0.023	0.040
V2	-8°	+8°	-8°	+8°

Symbol		A	A1	A2	b	c	c2	D	D1	E	E1	e	H	L	L2	L4	V2
SPEC	Min	2.18	0.9	0.03	0.64	0.46	0.46	5.97	4.95	6.35	4.32		9.35	1.0		0.6	-8°
	Normal											2.286Typ					
	Max	2.4	1.1	0.23	0.90	0.61	0.6	6.22	5.6	6.73	5.5		10.40	1.78	1.27	1.02	8°
MOY		2.30	1.01	0.07	0.78	0.51	0.53	6.14	5.47	6.58	4.70	2.30	10.12	1.56	0.50	0.71	2°37'
MIN		2.28	0.97	0.05	0.74	0.49	0.51	6.01	5.29	6.55	4.58	2.28	10.05	1.53	0.48	0.67	0°3'
MAX		2.35	1.03	0.09	0.81	0.54	0.56	6.19	5.56	6.61	4.84	2.34	10.19	1.60	0.51	0.77	4°41'

## 6.3 Test Description

Test name	Description	Purpose
<b>Die Oriented</b>		
<b>HTRB</b> High Temperature Reverse Bias / <b>HTFB</b> High Temperature Forward Bias	The device is stressed in static configuration, trying to satisfy as much as possible the following conditions: <ul style="list-style-type: none"> <li>- Low power dissipation</li> <li>- Max. supply voltage compatible with diffusion process and internal circuitry limitations.</li> </ul> Forward: device is forward biased with a current fixed and adjusted to reach the targeted junction temperature	To determine the effects of bias conditions and temperature on solid state devices over time. It simulates the devices' operating condition in an accelerated way. To maximize the electrical field across either reverse-biased junctions or dielectric layers, in order to investigate the failure modes linked to mobile contamination, oxide ageing, layout sensitivity to surface effects. To assess active area and contacts integrity

(1) ADG: Automotive and Discrete Group

<p align="center"><b>PCN</b></p> <p align="center"><b>Product/Process Change Notification</b></p>			
<p align="center"><b>Capacity extension with 8 inches conversion production line</b></p> <p align="center"><b>for STTH25M06B-TR, STTH25M06FP &amp; STTH30M06SPF</b></p>			
<b>Notification number:</b>	ADG/23/14380	<b>Issue Date</b>	21-Nov-2023
<b>Issued by</b>	Sophie da Silva		
<b>Product series affected by the change</b>	STTH25M06B-TR STTH25M06FP STTH30M06SPF		
<b>Type of change</b>	Front-End realization		
<p><b>Description of the change</b></p> <p>STMicroelectronics is extending capacity production for STTH25M06B-TR, STTH25M06FP &amp; STTH30M06SPF through the existing 8 inches (200mm) wafer diameter production line.</p>			
<p><b>Reason for change</b></p> <p>STMicroelectronics has decided to expand the manufacturing capacity of ultrafast diodes.</p> <p>This 8 inches wafer fab line (located in the same current existing plant ST Tours – France) is already qualified and mass production since H2-2018.</p> <p>This production upgrade is the result of the constant investments made by STMicroelectronics in the technology and the evolution of discrete devices. It illustrates the commitment of the Company to reinforce its leading position in the Power Rectifiers market. With this 8 inches wafer line investment, STMicroelectronics will increase its production capacity to better serve its customers through service improvement and lead time reduction, especially as volumes grow.</p>			
<b>Former versus changed product:</b>		<p>The changed products do not present modified electrical, dimensional or thermal parameters, leaving unchanged the current information published in the products datasheets.</p> <p>The Moisture Sensitivity Level of the part (according to the IPC/JEDEC JSTD-020D standard) remains unchanged.</p> <p>The footprint recommended by ST remains the same.</p> <p>There is no change in the packing modes and the standard delivery quantities either.</p> <p>The products remain in full compliance with the ST ECOPACK®2 grade (so called "halogen-free").</p>	

(1) ADG: Automotive and Discrete Group

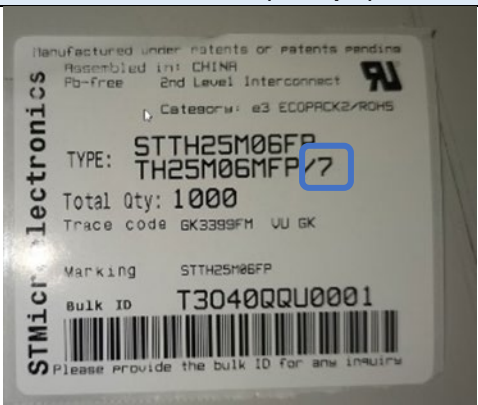
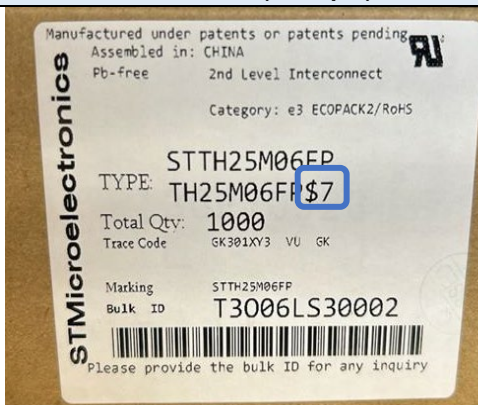
## Disposition of former products

As the purpose is a manufacturing capacity extension, shipments will be supported using the two production lines.

## Marking and traceability

Traceability of the change will be ensured by Finished Good/Type print on carton labels.  
The digit before last will be \$ for each 8 inches Finished Good code.

Commercial part number/Order code	Former Finished Good/Type	New Finished Good/Type
	Ending by /x	Ending by \$x
STTH25M06B-TR STTH25M06FP STTH30M06SPF	TH25M06MBTR/W TH25M06MFP/7 TH30M06SPF/W	TH25M06BTR\$W TH25M06FP\$7 TH30M06SPF\$W

Former Label (example)	New Label (example)
	

## Qualification completion date

Week 44-2023

## Forecasted sample availability

Product family	Sub-family	Commercial part Number	Availability date
Rectifiers	Ultrafast	STTH25M06B-TR	Week 49-2023
Rectifiers	Ultrafast	STTH25M06FP	Available
Rectifiers	Ultrafast	STTH30M06SPF	Week 49-2023

For sample(s) request, please inform FSE (Field Sales Engineer) in order to insert corresponding **Non-Standard Samples Order** (a single Commercial Product for each request) with **PCN reference** as additional information.

(1) ADG: Automotive and Discrete Group

Change implementation schedule		
Sales-types	Estimated production start	Estimated first shipments
All	Week 09-2024	Week 12-2024
<b>Comments:</b>		
With early PCN acceptance, possible shipment starting W10-2024.		
<b>Customer's feedback</b>		
Please contact your local ST sales representative or quality contact for requests concerning this change notification. Absence of acknowledgement of this PCN within 30 days of receipt will constitute acceptance of the change Absence of additional response within 90 days of receipt of this PCN will constitute acceptance of the change		
<b>Qualification program and results</b>		23030QRP Attached

# Qualification Report

## Qualification of conversion 8 inches for STTH25M06FP - STTH25M06B-TR - STTH30M06SPF

General Information		Locations	
<b>Product Line</b>	<i>Rectifiers</i>	<b>Wafer Fab</b>	<i>ST Tours – France</i>
<b>Product Description</b>	<i>600V, 25A ultrafast high voltage diode 600V, 30A ultrafast high voltage diode</i>	<b>Assembly Plant</b>	<i>ST Shenzhen – China Subcontractor (994X) - China</i>
<b>Product Perimeter</b>	<i>STTH25M06FP - STTH25M06B-TR - STTH30M06SPF</i>	<b>Reliability Lab</b>	<i>ST TOURS – FRANCE</i>
<b>Product Group</b>	<i>ADG</i>		
<b>Product Division</b>	<i>Discrete &amp; Filter</i>		
<b>Packages</b>	<i>TO-220FPAC – DPAK – TO-3PF</i>		
<b>Maturity level step</b>	<i>MAT 30</i>	<b>Reliability Assessment</b>	<i>PASS</i>

### DOCUMENT INFORMATION

Version	Date	Pages	Prepared by	Approved by	Comments
1	October 25, 2023	15	Elisabeth PREVOST	Christophe Goin <small>Digitally signed by Christophe Goin Date: 2023.11.16 15:58:26 +01'00'</small>	Qualification of conversion 8 inches for STTH25M06FP - STTH25M06B-TR - STTH30M06SPF

Note: This report is a summary of the qualification trials performed in good faith by STMicroelectronics in order to evaluate the potential risks during the product life using a set of defined test methods.  
This report does not imply for STMicroelectronics expressly or implicitly any contractual obligations other than as set forth in STMicroelectronics general terms and conditions of Sale. This report and its contents shall not be disclosed to a third party without previous written agreement from STMicroelectronics.

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## 1 APPLICABLE AND REFERENCE DOCUMENTS

Document reference	Short description
JESD 47	Stress-Test-Driven Qualification of Integrated Circuits
JESD 94	Application specific qualification using knowledge based test methodology
JESD 22	Reliability test methods for packaged devices
MIL-STD-750C	Test method for semiconductor devices

## 2 GLOSSARY

HTRB	High Temperature Reverse Bias
PD	Physical Dimensions
SS	Sample Size

### **3 RELIABILITY EVALUATION OVERVIEW**

#### **3.1 Objectives**

The objective of this report is to qualify conversion 8 inches for STTH25M06FP - STTH25M06B-TR - STTH30M06SPF embedded in TO-220FPAC – DPAK – TO-3PF.

Product	Description	Package	Assembly Location
STTH25M06FP	600 V, 25 A ultrafast high voltage diode	TO-220FPAC	ST Shenzhen - China.
STTH25M06B-TR		DPAK	ST Subcontractor (994x) - China
STTH30M06SPF	600 V, 30 A ultrafast high voltage diode	TO-3PF	

The reliability test methodology used follows the JESD47: « Stress Test driven Qualification Methodology.

The reliability tests ensuing are:

- HTRB to evaluate the risk of contamination from the resin and the assembly process versus the die layout sensitivity.

For some tests, similarity methodology is used. See 5.1 “comments” for more details about similarities.

#### **3.2 Conclusion**

Qualification Plan requirements have been fulfilled without exception. Reliability tests have shown that the devices behave correctly against environmental tests (no failure). Moreover, the stability of electrical parameters during the accelerated tests demonstrates the robustness of the products and safe operation, which is consequently expected during their lifetime.

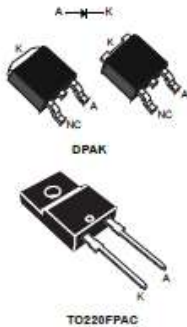
## 4 DEVICE CHARACTERISTICS

### 4.1 Device description


**STTH25M06**

Datasheet

600 V, 25 A ultrafast high voltage diode



#### Features

- Ultrafast recovery, soft recovery
- Low power losses at high switching frequency operations
- Low leakage current
- High junction temperature
- High overcurrent capability
- ECOPACK2 compliant

#### Applications

- PFC
- Boost diode
- LLC clamping diode

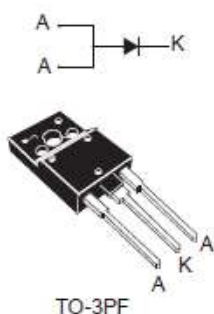
#### Description

The **STTH25M06** is an ultrafast recovery power rectifier especially suited for boost or LLC clamping circuits working at high switching frequencies in heavy duty applications such as air conditioning equipment or telecom power supplies.

Designed with the latest ST's ultrafast technology, this 600 V 25 A diode in DPAK and TO-220FPAC has a robust behavior against electrostatic discharge and high overcurrent capability.

Product status	
STTH25M06	
Product summary	
Symbol	Value
$I_{F(AV)}$	25 A
$V_{RRM}$	600 V
$t_{rr(typ.)}$	25 ns
$T_{j(max.)}$	175 °C
$V_F(typ.)$	1.6 V

## 600 V, 30 A ultrafast high voltage diode



### Features

- Ultrafast recovery, soft recovery
- Low power losses at high switching frequency operations
- Low leakage current
- High junction temperature
- High overcurrent capability
- ECOPACK2 compliant
- Insulated package TO-3PF:
  - Insulated voltage: 2000 V<sub>RMS</sub>

### Applications

- PFC
- Boost diode
- LLC clamping diode

### Description

The STTH30M06S is an ultrafast recovery power rectifier especially suited for boost or LLC clamping circuits working at high switching frequencies in heavy duty applications such as air conditioning equipment or telecom power supplies.

Designed with the latest ST's ultrafast technology, this 600 V 30 A diode in TO-3PF has a robust behavior against electrostatic discharge and high overcurrent capability.

Product status	
STTH30M06S	
Product summary	
Symbol	Value
$I_{F(AV)}$	30 A
$V_{RRM}$	600 V
$t_{rr(typ.)}$	25 ns
$T_{j(max.)}$	175 °C
$V_F(typ.)$	1.7 V

## 4.2 Construction Note

	<b>STTH25M06FP</b>
<b>Wafer/Die fab. information</b>	
Wafer fab manufacturing location	ST Tours – France
Technology / Process family	600 V, 25 A ultrafast high voltage diode
<b>Wafer Testing (EWS) information</b>	
Electrical testing manufacturing location	ST Tours – France
<b>Assembly information</b>	
Assembly site	ST Shenzhen - China
Package description	TO-220FPAC
Molding compound	ECOPACK®2
<b>Final testing information</b>	
Testing location	ST Shenzhen - China

	<b>STTH25M06B-TR</b>
<b>Wafer/Die fab. information</b>	
Wafer fab manufacturing location	ST Tours – France
Technology / Process family	600 V, 25 A ultrafast high voltage diode
<b>Wafer Testing (EWS) information</b>	
Electrical testing manufacturing location	ST Tours – France
<b>Assembly information</b>	
Assembly site	Subcontractor (994x) - China
Package description	DPAK
Molding compound	ECOPACK®2
<b>Final testing information</b>	
Testing location	Subcontractor (994x) - China

	<b>STTH30M06SPF</b>
<b>Wafer/Die fab. information</b>	
Wafer fab manufacturing location	ST Tours – France
Technology / Process family	600 V, 30 A ultrafast high voltage diode
<b>Wafer Testing (EWS) information</b>	
Electrical testing manufacturing location	ST Tours – France
<b>Assembly information</b>	
Assembly site	Subcontractor (994x) - China
Package description	TO-3PF
Molding compound	ECOPACK®2
<b>Final testing information</b>	
Testing location	Subcontractor (994x) - China

## 5 TESTS PLAN AND RESULTS SUMMARY

### 5.1 Test vehicles

Lot #	Part Number	Package	Comments
L1	STTH25M06FP	TO-220FPAC	1 <sup>st</sup> Qualification lot

Detailed results in below chapter will refer to these references.

### 5.2 Test plan

Stress	Abrv	Reference	Lot	SS	Comments	Test plan
Pre and Post-Stress Electrical Test	TEST	User specification or supplier's standard Specification	All qualification parts tested per the requirements of the appropriate device specification.			-
Pre-conditioning	PC	J-STD-020 JESD22-A113	All qualification parts tested per the requirements of the appropriate device specification.		As per targeted MSL Not applicable for PTH and WLCSP without coating	-
MSL research	MSL	J-STD-020	-	-	Not applicable for PTH and WLCSP without coating	-
External Visual	EV	JESD22B-101	All qualification parts tested per the requirements of the appropriate device specification.		Done during Assembly → Test & Finish inspection	-
Parametric Verification	PV	User specification	-	-		-
High Temperature Reverse Bias	HTRB	MIL-STD-750-1 M1038 Method A (for diodes, rectifiers and Zeners) M1039 Method A (for transistors)	L1	77	WBI after HTRB applicable only for dissimilar metal (wire/meta) in case of no Cu wire	X
AC blocking voltage	ACBV	MIL-STD-750-1 M1040 Test condition A	-	-	Required for Thyristor only. Alternative to HTRB	-
High Temperature Forward Bias	HTFB	JESD22 A-108	-	-	Not required, applicable only to LEDs Alternative to HTRB	-
High Temperature Operating Life	HTOL		-	-	Covered by HTRB or ACBV	-
Steady State Operational	SSOP	MIL-STD-750-1 M1038 Test condition B	-	-	Required for Voltage Regulator (Zener) only.	-
High Temperature Gate Bias	HTGB	JESD 22A-108	-	-	Required for Power MOSFET – IGBT only.	-
High Temperature Storage Life	HTSL	JESD22 A-103	-	-	Covered by HTRB	-
Temperature Humidity Storage	THS	JESD22 A-118	-	-	Covered by H3TRB	-
Temperature Cycling	TC	JESD22A-104	-	-		-
Temperature Cycling Hot Test	TCHT	JESD22A-104	-	-	Required for Power MOSFET – IGBT only.	-
Temperature Cycling Delamination Test	TCDT	JESD22A-104 J-STD-035	--		Required for Power MOSFET – IGBT only. Alternative to TCHT	-

Stress	Abrv	Reference	Lot	SS	Comments	Test plan
Wire Bond Integrity	WBI	MIL-STD-750 Method 2037		--	For dissimilar metal bonding systems only	-
Unbiased Highly Accelerated Stress Test	UHAST	JESD22A-118 or A101	-	-	Required for SCR/TRIAC RECTIFIER and Protection devices	-
Autoclave	AC	JESD22A-102	-	-	Alternative to UHAST	-
Highly Accelerated Stress Test	HAST	JESD22A-110	-	-	Covered by H3TRB (same failure mechanisms activation).	-
High Humidity High Temperature Reverse Bias	H3TRB	JESD22A-101	-	-	Alternative to HAST	-
High Temperature High Humidity Bias	HTHHB	JED22A-101	-	-	Not required, LED only	-
Intermittent Operational Life / Thermal Fatigue	IOL	MIL-STD-750 Method 1037	-	-	For power devices, Not required for Transient Voltage Suppressor (TVS) parts	-
Power and Temperature Cycle	PTC	JED22A-105	-	-	For power devices, Not required for Transient Voltage Suppressor (TVS) parts Perform PTC if $\Delta T_j > 100^\circ\text{C}$ cannot be achieved with IOL Alternative to IOL	-
ESD Characterization	ESD HBM	AEC Q101-001 and 005	-	-		-
ESD Characterization	ESD CDM	AEC Q101-001 and 005	-	-		-
Destructive Physical Analysis	DPA	AEC-Q101-004 Section 4	-	-	After H3TRB and TC	-
Physical Dimension	PD	JESD22B-100	-	-		-
Terminal Strength	TS	MIL-STD-750 Method 2036	-	-	Required for leaded parts only	-
Resistance to Solvents	RTS	JESD22B-107	-	-	Not applicable for Laser Marking	-
Constant Acceleration	CA	MIL-STD-750 Method 2006	-	-	Required for hermetic packaged parts only.	-
Vibration Variable Frequency	VVF	JESD22B-103	-	-	Required for hermetic packaged parts only.	-
Mechanical Shock	MS	JESD22 B-104	-	-	Required for hermetic packaged parts only.	-
Hermeticity	HER	JESD22A-109	-	-	Required for hermetic packaged parts only.	-
Resistance to Solder Heat	RSH	JESD22 A-111 (SMD) B-106 (PTH)	-	-		-
Solderability	SD	J-STD-002 JESD22B102	-	-		-
Dead Bug Test	DBT	ST Internal specification	-	-	Mandatory for SMD package Data collection for PTH package	-
Thermal Resistance	TR	JESD24-3, 24-4, 24-6 as appropriate	-	-	Required in case of process change. Not applicable to protection device as no limit specified in the datasheet	-
Wire Bond Strength	WBS	MIL-STD-750 Method 2037	-	-	Covered during workability trials	-
Bond Shear	BS	AEC-Q101-003	-	-	Covered during workability trials	-
Die Shear	DS	MIL-STD-750 Method 2017	-	-	Not Applicable to parts with solder paste die attach	-
Unclamped Inductive Switching	UIS	AEC-Q101-004 section 2	-	-	Required for Power MOS and internally clamped IGBTs only	-
Dielectric Integrity	DI	AEC-Q101-004 section 3	-	-	Required for Power MOSFET – IGBT only.	-
Short Circuit Reliability Characterization	SCR	AEC-Q101-006	-	-	Required for smart power parts only	-
Whisker Growth Evaluation	WG	AEC-Q005 JESD201	-	-	Not applicable for resin change	-
Early Life Failure Rate	ELFR	JESD74	-	-	Recommended for new techno development in case of identified failure mechanism	-

Stress	Abrv	Reference	Lot	SS	Comments	Test plan
Functional Test (in rush, di/dt,)	FT	Internal specification	-	-		-
Repetitive Surge	RS	Internal specification	-	-	Required for protection devices only.	-
Low Temperature Storage	LTS	JESD-22 A119: 209	-	-	AQG324 test for Modules	-
Thermal shock test	TST	JESD22-A104	-	-	AQG324 test for Modules	-
Power Cycling (seconds)	PC sec	MIL-STD750-1 Method1037	-	-	AQG324 test for Modules	-
Power Cycling (minutes)	PC min	MIL-STD750-1 Method1037	-	-	AQG324 test for Modules	-
Mechanical shock	MS	IEC 600068-2-27	-	-	AQG324 test for Modules	-
Vibration	V	IEC60068-2-6	-	-	AQG324 test for Modules	-



### 5.3 Results summary

Test	PC	Std ref.	Conditions	Steps / Duration	SS	Failure / SS
						L1
HTRB	N	MIL-STD-750-1 M1038 Method A	Junction Temperature=150°C Voltage=480V	1Khrs	77	0/77

Note 1: These data are indicative values given as information only. Please note that the ST guarantee is the compliance of the products to the ST datasheet. Parameters distributions are not considered as a ST guarantee under any circumstances.

Please note that these electrical parameters are 100% tested at 25°C at Final stage of back-end manufacturing before deliveries to customers.”

## 6 ANNEXES

### 6.1 Parametric Verification

Results on **STTH25M06FP** product:

TEST	IR	IR	VF	VF	VF	VF
EQUIPMENT						
Condition 1	25°C	125°C	25°C	25°C	150°C	150°C
Condition 2	VR=600V	VR=600V	IF=15A	IF=25A	IF=15A	IF=25A
Condition 3						
Min. Datasheet						
Typ. Datasheet		70μA	2.1V	2.5V	1.3V	1.6V
Max. Datasheet	60μA	800μA		3.4V		2.0V
UNIT	μA	μA	V	V		
N	30	30	30	30	30	30
Min	0,041	21,5	1,889	2,203	1,207	1,438
Max	1,375	28,5	2,048	2,404	1,267	1,518

TEST	VR	VR	VR
EQUIPMENT			
Condition 1	25°C	125°C	150°C
Condition 2	IR=1mA	IR=1mA	IR=1mA
Condition 3			
Min. Datasheet	600	600	600
Typ. Datasheet			
Max. Datasheet			
UNIT	V	V	V
N	30	30	30
Min	652,8	699,9	705,7
Max	678,3	728,4	736,6

## 6.2 Physical Dimensions

### Dimensional report for TO-220FPAC package at ST Shenzhen

Figure 17. TO-220FPAC package outline

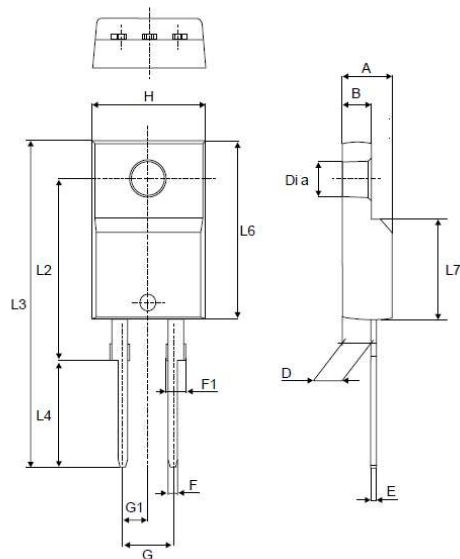


Table 6. TO-220FPAC package mechanical data

Ref.	Dimensions			
	Millimeters		Inches (for reference only)	
	Min.	Max.	Min.	Max.
A	4.40	4.60	0.173	0.181
B	2.5	2.7	0.098	0.106
D	2.5	2.75	0.098	0.108
E	0.45	0.70	0.018	0.027
F	0.75	1	0.030	0.039
F1	1.15	1.70	0.045	0.067
G	4.95	5.20	0.195	0.205
G1	2.4	2.7	0.094	0.106
H	10	10.4	0.393	0.409
L2	16 typ.		0.63 typ.	
L3	28.6	30.6	1.126	1.205
L4	9.8	10.6	0.386	0.417
L6	15.9	16.4	0.626	0.646
L7	9.00	9.30	0.354	0.366
Diam	3.00	3.20	0.118	0.126

Cote	A	B	D	E	F	F1	G	G1	H	L2	L3	L4	L6	L7	Dia
MIN	4,4	2,5	2,5	0,45	0,75	1,15	4,95	2,4	10	16	28,6	9,8	15,9	9	3
TYP															
MAX	4,6	2,7	2,75	0,7	1	1,7	5,2	2,7	10,4		30,6	10,6	16,4	9,3	3,2
MIN	4,42	2,50	2,50	0,50	0,80	1,26	5,04	2,50	10,12	16,00	29,61	10,10	15,90	9,12	3,12
MAX	4,47	2,58	2,60	0,50	0,81	1,40	5,11	2,63	10,28	16,00	29,87	10,30	16,24	9,20	3,19
valeur moyenne	4,448	2,545	2,549	0,500	0,801	1,370	5,069	2,532	10,232	16,000	29,678	10,175	16,159	9,159	3,162

## Dimensional report for TO-3PF package at Subcontractor (994x)

Figure 13. TO-3PF package outline

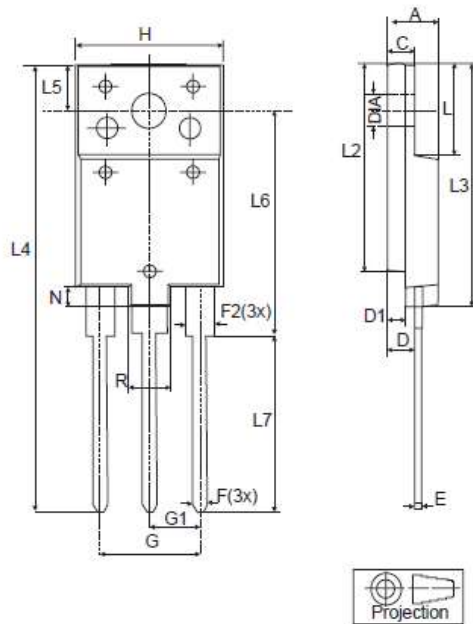


Table 5. TO-3PF mechanical data

Dim.	mm		
	Min.	Typ.	Max.
A	5.30		5.70
C	2.80		3.20
D	3.10		3.50
D1	1.80		2.20
E	0.80		1.10
F	0.65		0.95
F2	1.80		2.20
G	10.30		11.50
G1		5.45	
H	15.30		15.70
L	9.80	10.00	10.20
L2	22.80		23.20
L3	28.30		26.70
L4	43.20		44.40
L5	4.30		4.70
L6	24.30		24.70
L7	14.60		15.00
N	1.80		2.20
R	3.80		4.20
Dia	3.40		3.80

pce	Cote A	Cote C	Cote D	CoteD1	CoteE	Cote F	CoteF2	Cote G	Cote G1	Cote H	Cote L	Cote L2	Cote L3	Cote L4	Cote L5	Cote L6	Cote L7	Cote N	Cote R	Diam
MIN	5,3	2,8	3,1	1,8	0,8	0,65	1,8	10,3		15,3	9,8	22,8	26,3	43,2	4,3	24,3	14,6	1,8	3,8	3,4
TYP									5,45											
MAX	5,7	3,2	3,5	2,2	1,1	0,95	2,2	11,5		15,7	10,2	23,2	26,7	44,4	4,7	24,7	15	2,2	4,2	3,8
MOY	5,52	3,02	3,26	1,99	0,89	0,86	2,05	10,95	5,46	15,50	9,97	23,00	26,51	43,87	4,34	24,51	14,77	1,99	3,99	3,59
MIN	5,49	3,00	3,21	1,97	0,86	0,81	1,99	10,91	5,43	15,48	9,94	22,92	26,42	43,72	4,33	24,46	14,72	1,97	3,92	3,57
MAX	5,55	3,04	3,30	2,00	0,90	0,88	2,09	10,99	5,50	15,53	10,00	23,09	26,55	43,94	4,36	24,56	14,83	2,00	4,02	3,61

## Dimensional report for DPAK package at Subcontractor (994x)

Figure 15. DPAK package outline

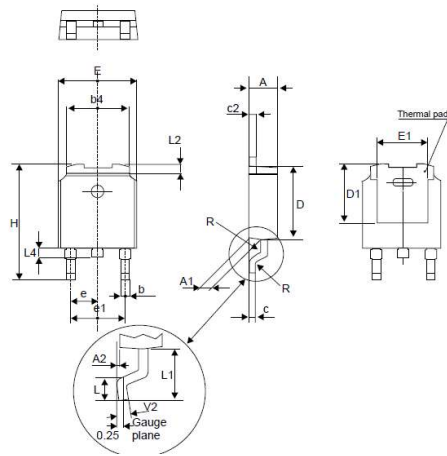


Table 5. DPAK package mechanical data

Ref.	Dimensions			
	Millimeters		Inches (for reference only)	
	Min.	Max.	Min.	Max.
A	2.18	2.40	0.085	0.094
A1	0.90	1.10	0.035	0.043
A2	0.03	0.23	0.001	0.009
b	0.64	0.90	0.025	0.035
b4	4.95	5.46	0.194	0.215
c	0.46	0.61	0.018	0.024
c2	0.46	0.60	0.018	0.023
D	5.97	6.22	0.235	0.244
D1	4.95	5.60	0.194	0.220
E	6.35	6.73	0.250	0.265
E1	4.32	5.50	0.170	0.216
e	2.286 typ.		0.090 typ.	
e1	4.40	4.70	0.173	0.185
H	9.35	10.40	0.368	0.409
L	1.0	1.78	0.039	0.070
L2		1.27		0.050
L4	0.60	1.02	0.023	0.040
V2	-8°	+8°	-8°	+8°

Symbol		A	A1	A2	b	c	c2	D	D1	E	E1	e	H	L	L2	L4	V2
SPEC	Min	2.18	0.9	0.03	0.64	0.46	0.46	5.97	4.95	6.35	4.32		9.35	1.0		0.6	-8°
	Normal											2.286Typ					
	Max	2.4	1.1	0.23	0.90	0.61	0.6	6.22	5.6	6.73	5.5		10.40	1.78	1.27	1.02	8°
MOY		2.30	1.01	0.07	0.78	0.51	0.53	6.14	5.47	6.58	4.70	2.30	10.12	1.56	0.50	0.71	2°37'
MIN		2.28	0.97	0.05	0.74	0.49	0.51	6.01	5.29	6.55	4.58	2.28	10.05	1.53	0.48	0.67	0°3'
MAX		2.35	1.03	0.09	0.81	0.54	0.56	6.19	5.56	6.61	4.84	2.34	10.19	1.60	0.51	0.77	4°41'

## 6.3 Test Description

Test name	Description	Purpose
<b>Die Oriented</b>		
<b>HTRB</b> High Temperature Reverse Bias / <b>HTFB</b> High Temperature Forward Bias	The device is stressed in static configuration, trying to satisfy as much as possible the following conditions: <ul style="list-style-type: none"> <li>- Low power dissipation</li> <li>- Max. supply voltage compatible with diffusion process and internal circuitry limitations.</li> </ul> Forward: device is forward biased with a current fixed and adjusted to reach the targeted junction temperature	To determine the effects of bias conditions and temperature on solid state devices over time. It simulates the devices' operating condition in an accelerated way. To maximize the electrical field across either reverse-biased junctions or dielectric layers, in order to investigate the failure modes linked to mobile contamination, oxide ageing, layout sensitivity to surface effects. To assess active area and contacts integrity



Public Products List

Publct Products are off the shelf products. They are not dedicated to specific customers, they are available through ST Sales team, or Distributors, and visible on ST.com

**PCN Title** : Capacity extension with 8 inches conversion production line for STTH25M06B-TR - STTH25M06FP & STTH30M06SPF

**PCN Reference** : ADG/23/14380

**Subject** : Public Products List

Dear Customer,

Please find below the Standard Public Products List impacted by the change.

STTH25M06B-TR	STTH30M06SPF	STTH25M06FP
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