

Features

- Very Low FOM $R_{DS(on)} \times Q_g$
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 62.5°C/W Junction to Ambient
- Thermal Resistance: 1.5°C/W Junction to Case

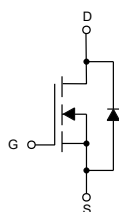
Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V _{DS}	650	V
Gate-Source Voltage		V _{GS}	±30	V
Continuous Drain Current		I _D	11	A
Pulsed Drain Current ^(Note 2)		I _{DM}	45	A
Single Pulse Avalanche Energy ^(Note 3)		E _{AS}	215	mJ
Avalanche Current ^(Note 2)		I _{AR}	1.6	A
Repetitive Avalanche Energy ^(Note 2)		E _{AR}	0.32	mJ
Total Power Dissipation	T _C =25°C	P _D	83.3	W

Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

2. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.

3. $V_{DD}=50\text{V}$, $R_G=25\Omega$, Starting $T_J=25^\circ\text{C}$.

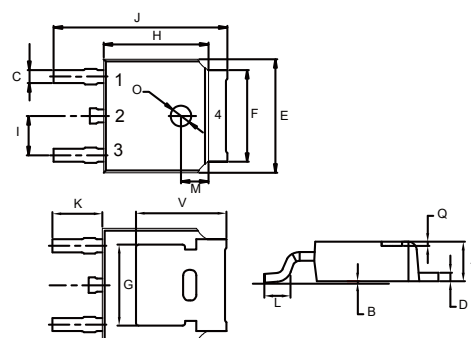
Internal Structure



1. Gate
2. Drain
3. Source

N-CHANNEL Super-Junction Power MOSFET

DPAK(TO-252)



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.087	0.094	2.20	2.40	
B	0.000	0.005	0.00	0.13	
C	0.026	0.034	0.66	0.86	
D	0.018	0.023	0.46	0.58	
E	0.256	0.264	6.50	6.70	
F	0.201	0.215	5.10	5.46	
G	0.190		4.83		TYP.
H	0.236	0.244	6.00	6.20	
I	0.086	0.094	2.18	2.39	
J	0.386	0.409	9.80	10.40	
K	0.114		2.90		TYP.
L	0.055	0.067	1.40	1.70	
M	0.063		1.60		TYP.
O	0.043	0.051	1.10	1.30	
Q	0.000	0.012	0.00	0.30	
V	0.211		5.35		TYP.

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	650			V
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±30V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =650V, V _{GS} =0V			1	μA
		V _{DS} =650V, V _{GS} =0V, T _J =150°C			100	
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2		4	V
Drain-Source On-Resistance ^(Note 4)	R _{DS(on)}	V _{GS} =10V, I _D =3.2A		0.34	0.38	Ω
Forward tranconductance ^(Note 4)	g _{FS}	V _{DS} =10V, I _D =3.2A		7.8		S
Dynamic Characteristics ^(Note 5)						
Input Capacitance	C _{iss}	V _{DS} =25V,V _{GS} =0V,f=1MHz		763		pF
Output Capacitance	C _{oss}			896		
Reverse Transfer Capacitance	C _{rss}			39		
Total Gate Charge	Q _g	V _{DD} =520V,V _{GS} =10V,I _D =11A		21		nC
Gate-Source Charge	Q _{gs}			5.3		
Gate-Drain Charge	Q _{gd}			7.5		
Turn-On Delay Time	t _{d(on)}	V _{DD} =325V, I _D =11A,R _G =25Ω		19		ns
Turn-On Rise Time	t _r			38		
Turn-Off Delay Time	t _{d(off)}			108		
Turn-Off Fall Time	t _f			36		
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I _S	T _C =25°C			11	A
Pulsed Diode Forward Current	I _{SM}				33	
Body Diode Voltage	V _{SD}	I _{SD} =11A, V _{GS} =0V			1.4	V
Reverse Recovery Time	t _{rr}	V _R =520V, I _F =I _S ,di _F /dt=100A/μs		324		ns
Reverse Recovery Charge	Q _{rr}			3.8		μC
Peak Reverse Recovery Current	I _{rrm}			23		A

Note 4. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 1\%$.

5. Guaranteed by Design, Not Subject to Production Testing.

Curve Characteristics

Fig. 1 - Typical Output Characteristics

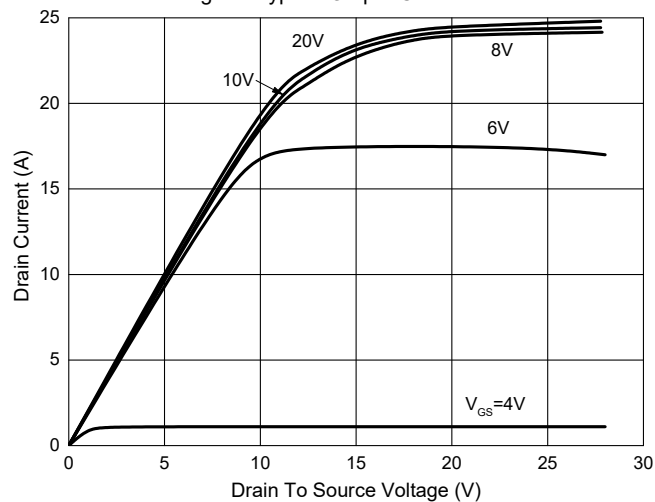


Fig. 2 - Transfer Characteristics

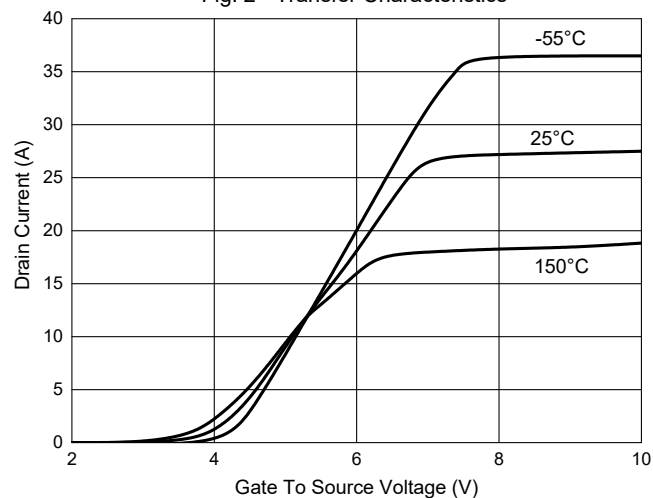


Fig. 3 - $R_{DS(ON)}-I_D$

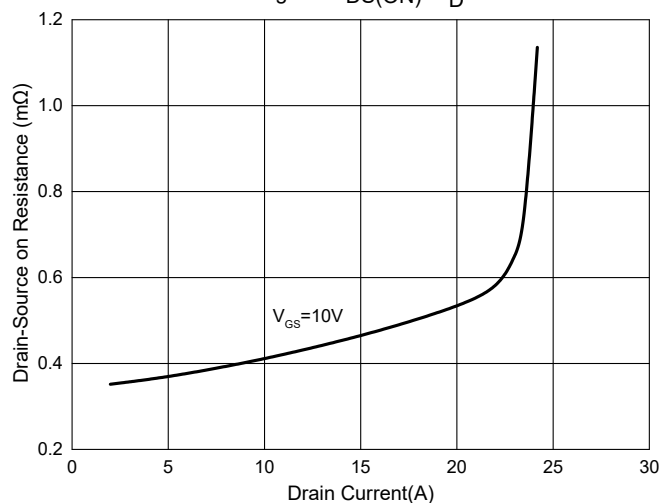


Fig. 4 - Normalized On Resistance Characteristics

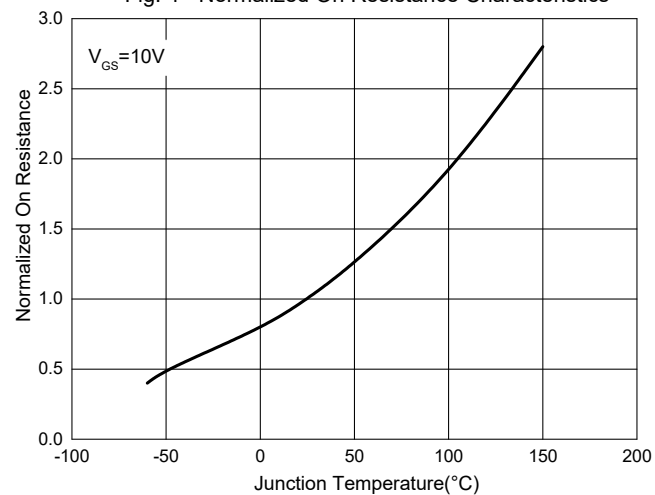


Fig. 5 - Gate Charge

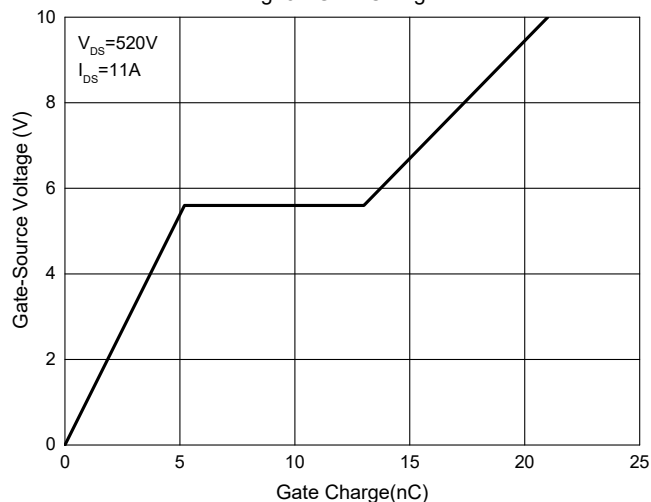


Fig. 6 - Capacitance Characteristics

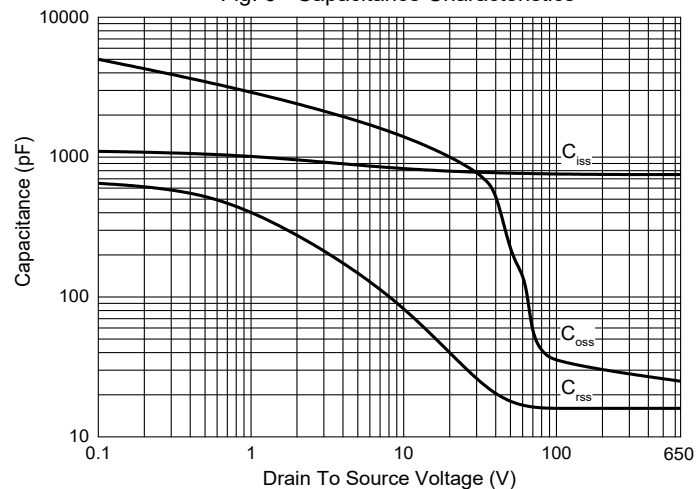


Fig. 7 - Normalized Drain-Source Breakdown Voltage

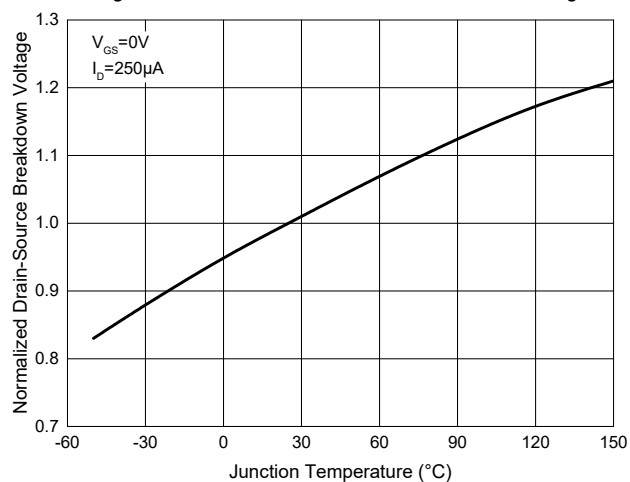


Fig. 8 - Safe Operation Area

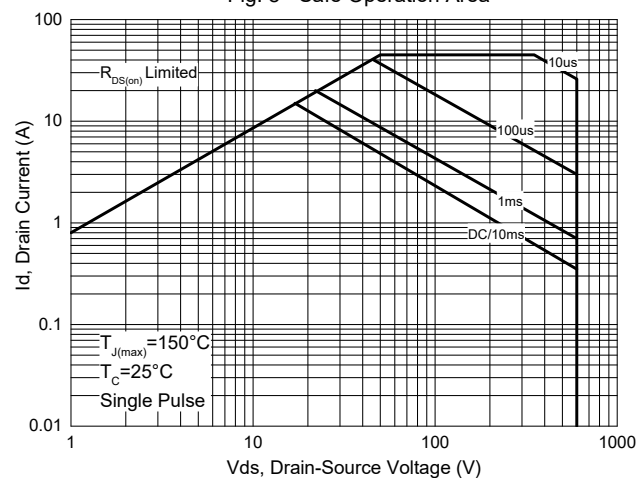
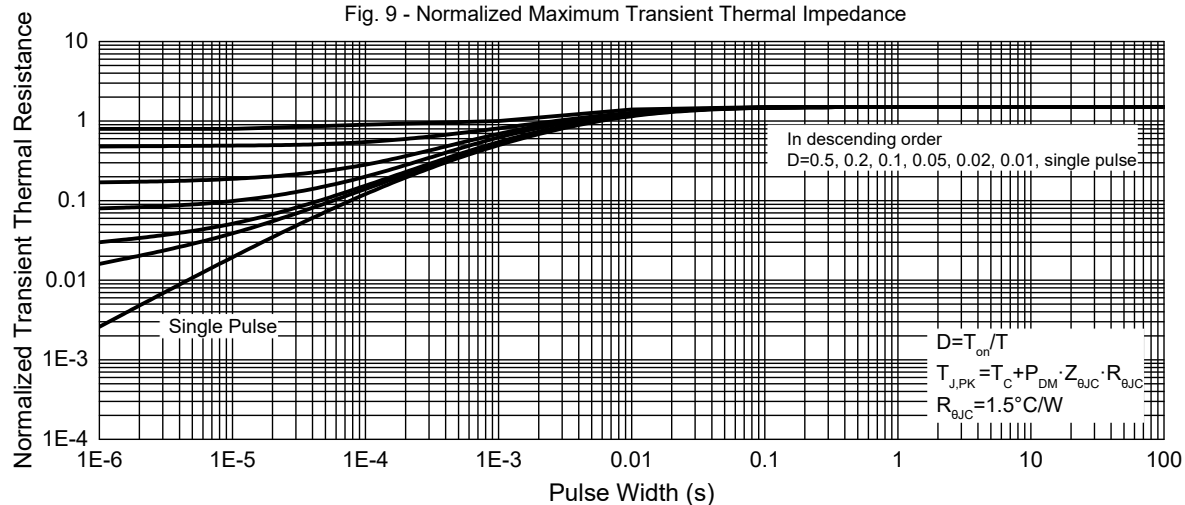


Fig. 9 - Normalized Maximum Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 2.5Kpcs/Reel

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