

CMS16P06H8-HF

Description

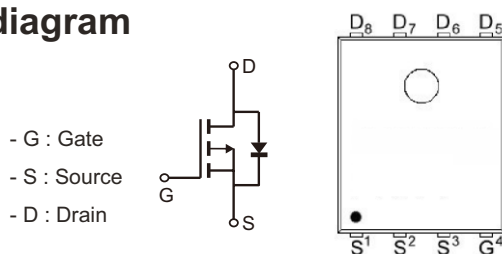
The CMS16P06H8-HF is the highest performance P-ch MOSFETs with super high dense cell design for extremely low $R_{DS(ON)}$ and gate charge for most of the synchronous buck converter applications.

The CMS16P06H8-HF meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

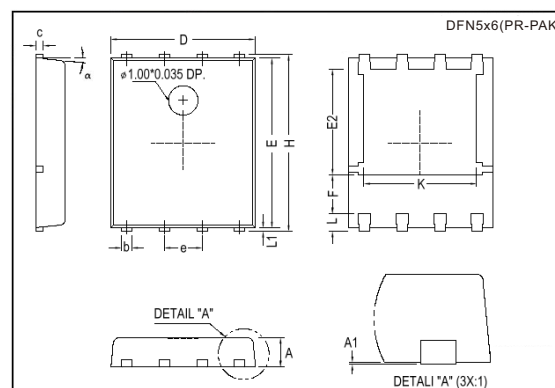
Features

- Low Reverse Transfer Capacitance
- Improve dv/dt Capability
- Green Device Available
- High Switching Speed
- 100% EAS Guaranteed

Circuit diagram



Package Dimensions



REF.	Millimeter			REF.	Millimeter		
	Min.	Nom.	Max.		Min.	Nom.	Max.
A	0.85	1.00	1.15	E	5.70	-	5.90
A1	0.00	-	0.10	e	-	1.27	-
b	0.30	-	0.51	H	5.90	-	6.20
c	0.20	-	0.30	L	-	0.60	-
D	4.80	-	5.00	L1	0.06	-	0.20
F	1.10REF.			α	0°	-	12°
E2	3.50REF.			K	3.70	3.90	4.10

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹	$I_D @ T_C = 25^\circ C$	-16	A
	$I_D @ T_C = 100^\circ C$	-10	A
Pulsed Drain Current ²	I_{DM}	-64	A
Continuous Drain Current ¹	$I_D @ T_A = 25^\circ C$	-5	A
	$I_D @ T_A = 70^\circ C$	-4	A
Total Power Dissipation ⁴	$P_D @ T_C = 25^\circ C$	25	W
	$P_D @ T_A = 25^\circ C$	2	W
Single Pulse Avalanche Energy, $L=0.1mH^3$	EAS	51	mJ
Single Pulse Avalanche Current, $L=0.1mH^3$	IAS	-32	A
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 ~ +150	°C

Thermal Data

Parameter	Symbol	Conditions	Max. Value	Unit
Thermal Resistance Junction-ambient ¹	$R_{\theta JA}$	Steady State	62.5	°C/W
Thermal Resistance Junction-case ¹	$R_{\theta JC}$	Steady State	5	°C/W

Company reserves the right to improve product design , functions and reliability without notice.

REV: A

Electrical Characteristics (T_J=25℃ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV _{DSS}	-60	-	-	V	V _{GS} =0, I _D =-250μA
Gate Threshold Voltage	V _{GS(th)}	-1.0	-1.7	-2.5	V	V _{DS} =V _{GS} , I _D =-250μA
Gate-Source Leakage Current	I _{GSS}	-	-	±100	nA	V _{GS} =±20V
Drain-Source Leakage Current	I _{DSS}	-	-	-1	μA	V _{DS} =-60V, V _{GS} =0
Static Drain-Source On-Resistance ²	R _{DS(ON)}	-	44	48	mΩ	V _{GS} =-10V, I _D =-8A
		-	55	65		V _{GS} =-4.5V, I _D =-4A
Total Gate Charge ²	Q _g	-	22	-	nC	I _D =-8A
Gate-Source Charge	Q _{gs}	-	4.1	-		V _{DS} =-30V
Gate-Drain ("Miller") Charge	Q _{gd}	-	5.2	-		V _{GS} =-10V
Turn-on Delay Time ²	T _{d(on)}	-	13	-	ns	V _{DS} =-30V
Rise Time	T _r	-	42	-		I _D =-1A
Turn-off Delay Time	T _{d(off)}	-	65	-		V _{GS} =-10V
Fall Time	T _f	-	16	-		R _G =6Ω
Input Capacitance	C _{iss}	-	1256	-	pF	V _{GS} =0V
Output Capacitance	C _{oss}	-	87	-		V _{DS} =-30V
Reverse Transfer Capacitance	C _{rss}	-	59	-		f=1.0MHz

Guaranteed Avalanche Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Single Pulse Avalanche Energy ⁵	EAS	3.2	-	-	mJ	V _{DD} =-25V, L=0.1mH, I _{AS} =-8A

Source-Drain Diode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Diode Forward Voltage ²	V _{SD}	-	-0.72	-1.0	V	I _S =-1A, V _{GS} =0V, T _J =25℃
Continuous Source Current ^{1,6}	I _S	-	-	-16	A	-----

Notes : 1.The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.

2.The data tested by pulsed,pulse width ≤ 300us,duty cycle ≤ 2%.

3.The EAS data shows Max. rating. The test condition is V_{DD}=-25V,V_{GS}=-10V,L=0.1mH,I_{AS}=-32A.

4.The power dissipation is limited by 150℃ junction temperature.

5.The Min. Value is 100% EAS tested guarantee.

6.The data is theoretically the same as I_D and I_{DM},in real applications,should be limited by total power dissipation.

Typical Characteristics

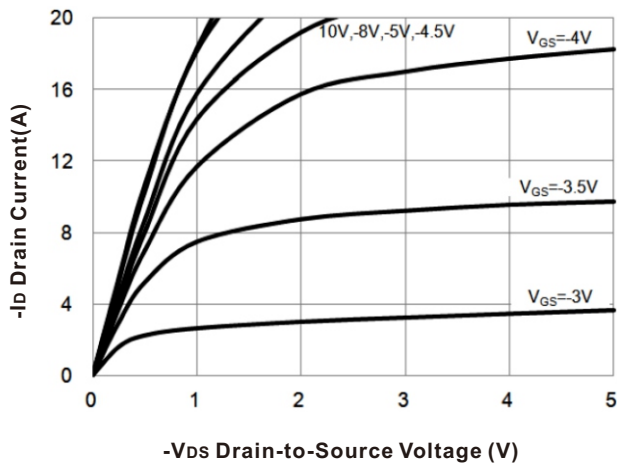


Fig.1 Typical Output Characteristics

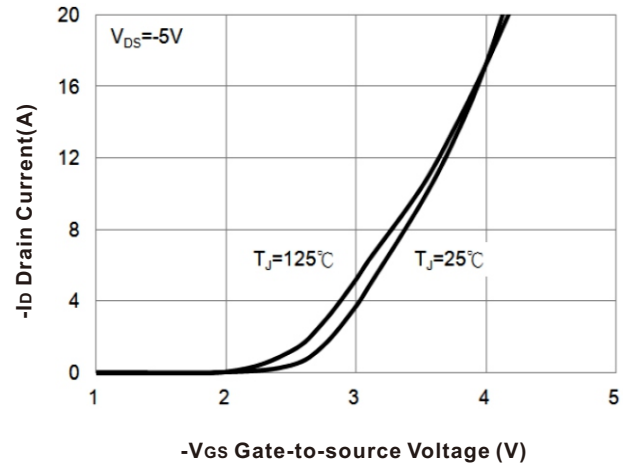


Fig.2 Transfer Characteristics

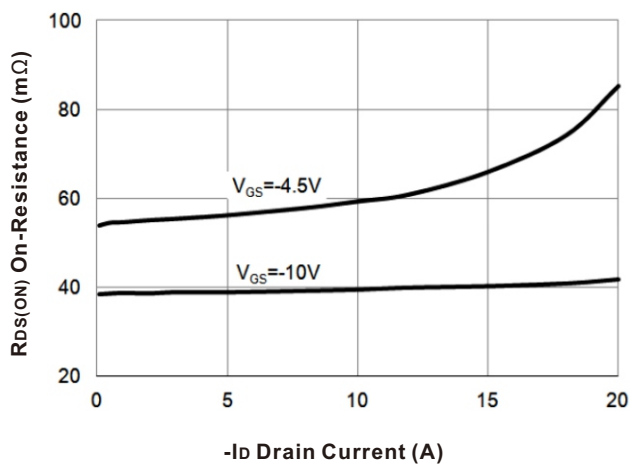


Fig.3 On-Resistance vs. Drain Current

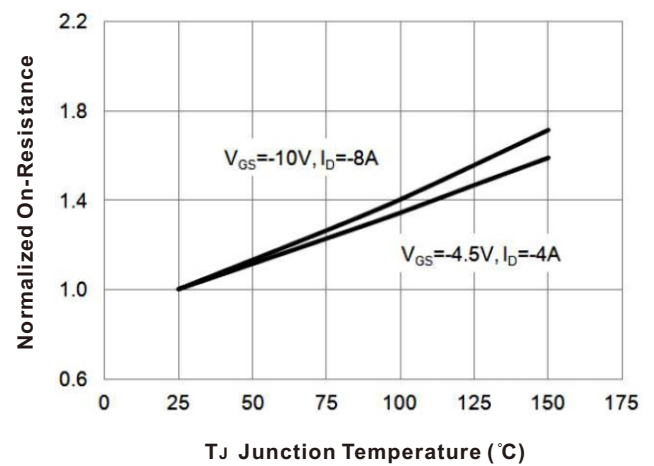


Fig.4 Normalized R_{DS(on)} vs. T_J

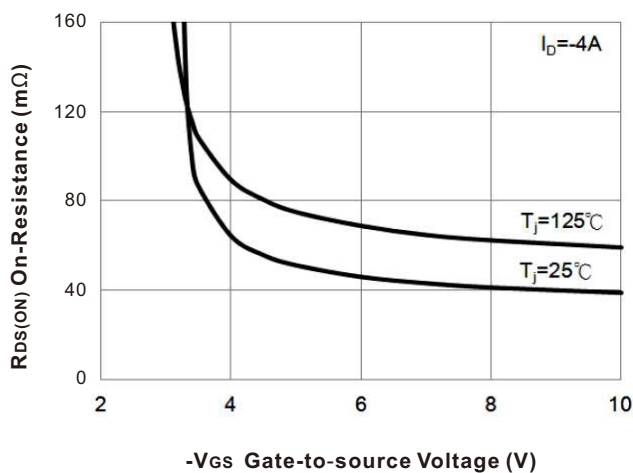


Fig.5 On-Resistance vs. G-S Voltage

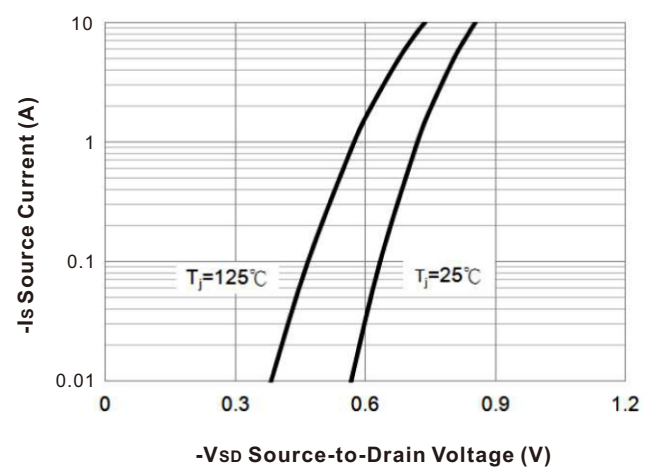


Fig.6 Forward Characteristics of Reverse

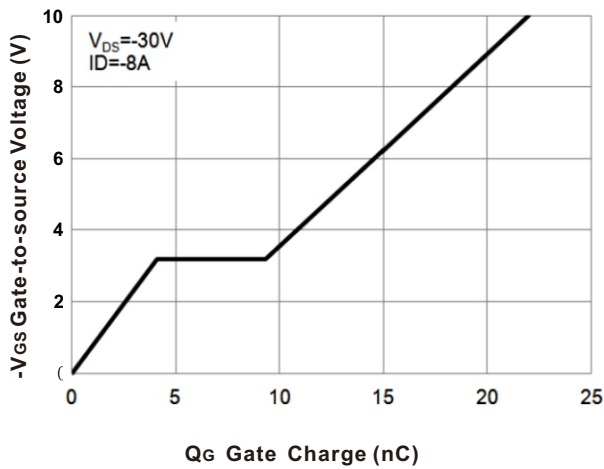


Fig.7 Gate Charge Characteristics

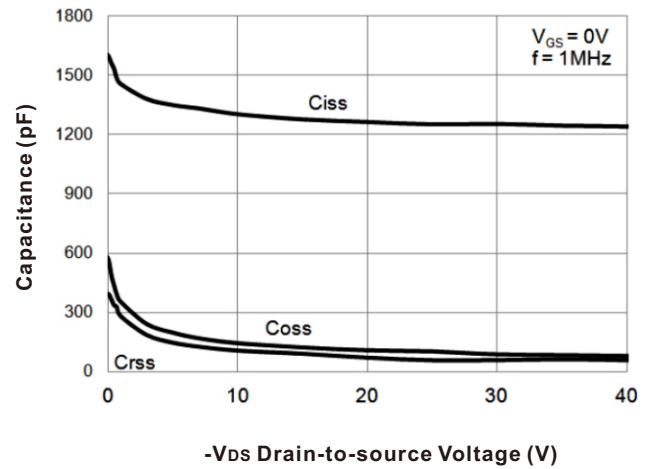


Fig.8 Capacitance Characteristics

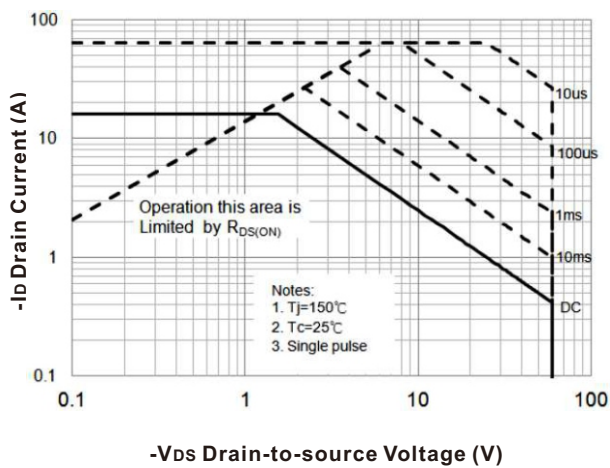


Fig.9 Safe Operating Area

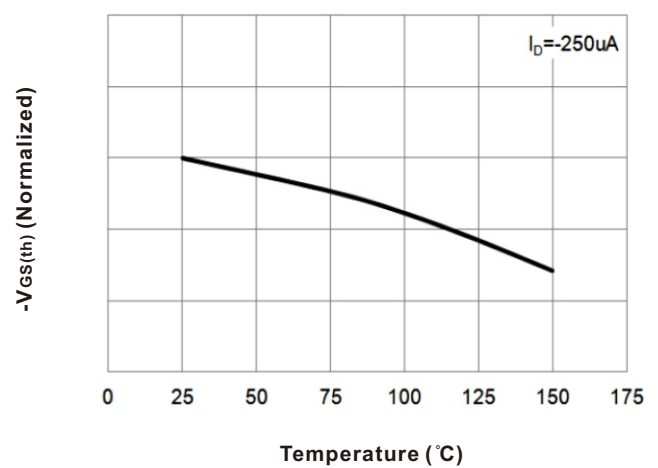


Fig.10 Normalized $V_{GS(th)}$ vs. Temperature

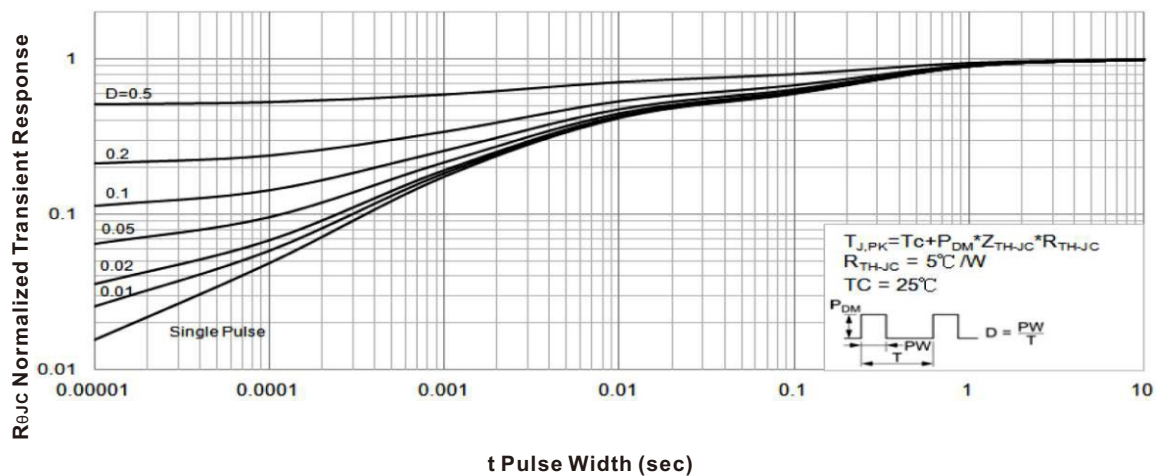
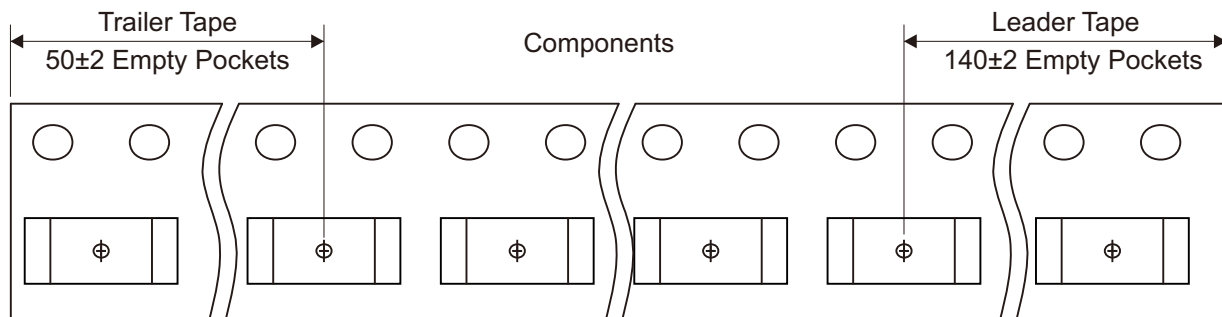
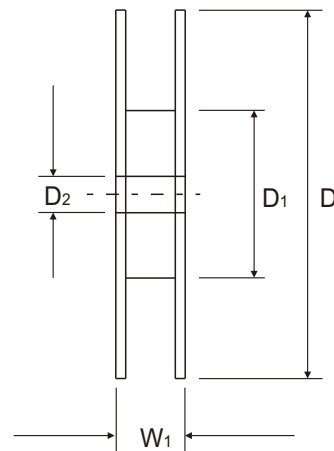
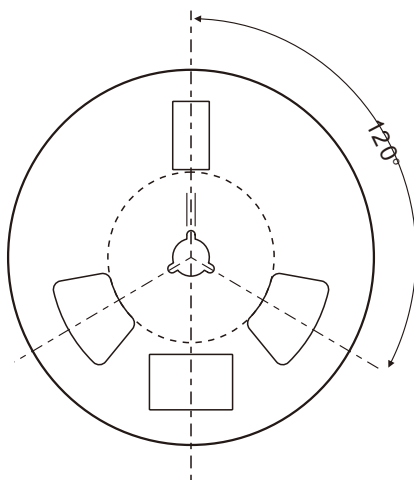
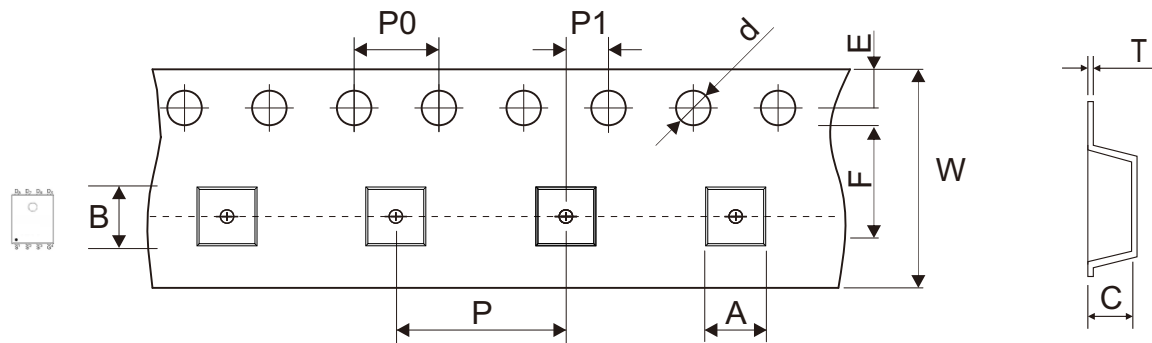


Fig.11 Normalized Maximum Transient Thermal Impedance

Reel Taping Specification

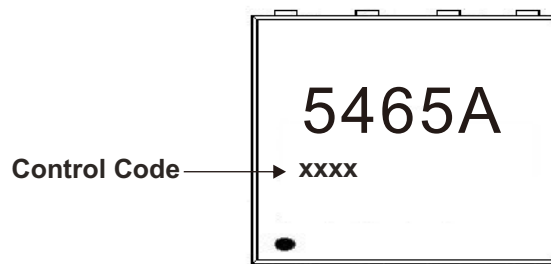


DFN5x6 (PR-PAK)	Symbol	A	B	C	d	D	D1	D2
	(mm)	6.50 ± 0.10	5.30 ± 0.10	1.40 ± 0.10	1.50 ± 0.05	330.00 ± 2.00	178.00 ± 2.00	13.00 ± 1.00
	(inch)	0.256 ± 0.004	0.209 ± 0.004	0.055 ± 0.004	0.059 ± 0.002	12.992 ± 0.079	7.008 ± 0.079	0.512 ± 0.039

DFN5x6 (PR-PAK)	Symbol	E	F	P	P0	P1	T	W	W1
	(mm)	1.75 ± 0.10	5.50 ± 0.05	8.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.30 ± 0.05	12.00 ± 0.30	18.40 ± 1.00
	(inch)	0.069 ± 0.004	0.217 ± 0.002	0.315 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.012 ± 0.002	0.472 ± 0.012	0.724 ± 0.039

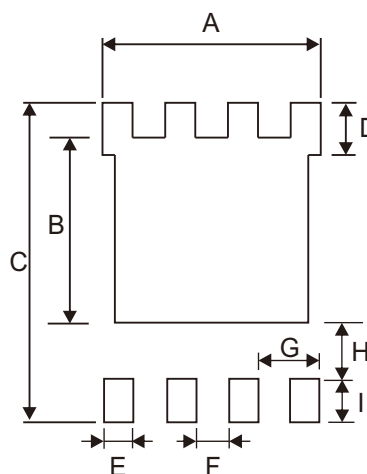
Marking Code

Part Number	Marking Code
CMS16P06H8	5465A



Suggested PAD Layout

Dimensions	Value (in mm)
A	4.420
B	3.810
C	6.610
D	1.020
E	0.610
F	0.660
G	1.270
H	0.820
I	1.270



Note:

- 1.The pad layout is for reference purposes only.

Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
DFN5x6 (PR-PAK)	3,000	13

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