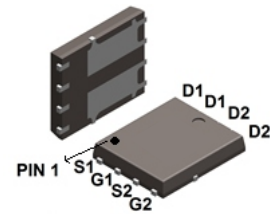


CMS25NN06H8-HF

Dual N-Channel

RoHS Device

Halogen Free



Features

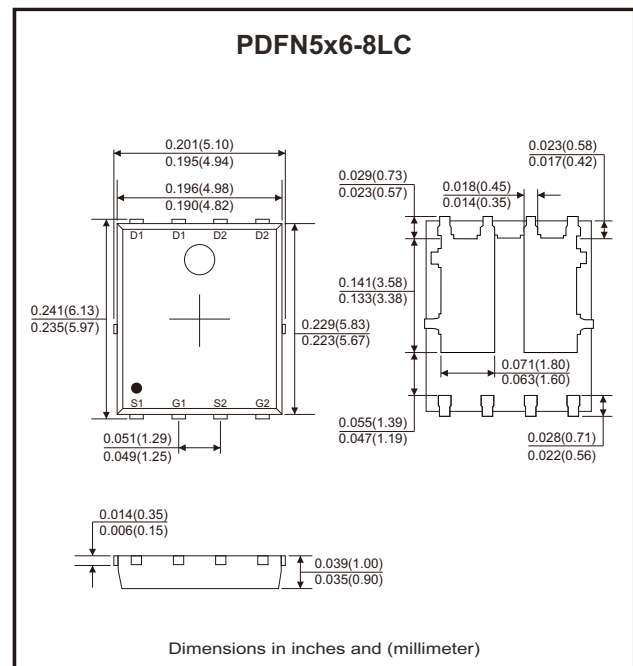
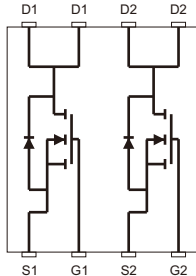
- Super low gate charge.
- Excellent C_{dv}/dt effect decline.
- Advanced high cell density trench technology.

Mechanical data

- Case: PDFN5x6-8LC, molded plastic.
- Molding compound: UL flammability classification rating 94V-0.
- Terminals: Matte tin plated leads, solderability per MIL-STD-202, method 208.

Circuit Diagram

G:Gate
S:Source
D:Drain



Maximum Ratings (at $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	60	V
Gate-source voltage	V_{GS}	± 20	V
Continuous drain current ($T_C=25^\circ\text{C}$) (Note 1)	I_D	25	A
Continuous drain current ($T_C=100^\circ\text{C}$) (Note 1)	I_D	18	
Pulsed drain current ($t_p = 10\mu\text{s}$)	I_{DM}	98	A
Single pulse avalanche energy (Note 3)	E_{AS}	40	mJ
Power dissipation ($T_C=25^\circ\text{C}$) (Note 4)	P_D	33	W
Thermal resistance junction to case (Note 1)	$R_{\theta JC}$	4.5	$^\circ\text{C/W}$
Thermal resistance junction to air (Note 5)	$R_{\theta JA}$	100	$^\circ\text{C/W}$
Operating junction temperature range	T_J	-55 to +175	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 to +175	$^\circ\text{C}$

Electrical Characteristics (at $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{DS}	V _{GS} = 0V, I _D = 250μA	60			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = 48V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
On Characteristics						
Static drain-source on-resistance (Note 2)	R _{DS(on)}	V _{GS} = 10V, I _D = 20A		12	20	mΩ
	R _{DS(on)}	V _{GS} = 4.5V, I _D = 15A		16	24	mΩ
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1	1.7	2.5	V
Dynamic Characteristics						
Input capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 15V, f = 1MHz		1880		pF
Output capacitance	C _{oss}			170		
Reverse transfer capacitance	C _{rss}			140		
Switching Characteristics						
Turn-on delay time	t _{d(on)}	V _{DD} = 30V, V _{GS} = 10V, R _G = 3Ω I _D = 15A		7.4		ns
Turn-on rise time	t _r			5.1		
Turn-off delay time	t _{d(off)}			28.3		
Turn-off fall time	t _f			5.5		
Total gate charge	Q _g	V _{DD} = 48V, V _{GS} = 10V, I _D = 15A		36		nC
Gate to source charge	Q _{gs}			4.7		
Gate to drain (miller) charge	Q _{gd}			9		
Source-Drain Diode Characteristics						
Diode forward voltage (Note 2)	V _{SD}	I _{SD} = 5A, V _{GS} = 0V, T _J = 25°C			1.2	V
Diode continuous forward current (Note 1, 4)	I _S				25	A
Reverse recovery time	t _{rr}	V _R = 50V, I _F = 15A, di/dt = 100A/μs		26		ns
Reverse recovery charge	Q _{rr}			18		nC

Notes: 1. The data tested by surface mounted on a 1 inch² FR-4 board with 2oz copper.

2. The data tested by pulsed, pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

3. The EAS data shows Max. rating. The test condition is $V_{DD}=25\text{V}, V_{GS}=10\text{V}, L=0.1\text{mH}$.

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

5. The data is test on minimal footprint.

Rating and Characteristic Curves (CMS25NN06H8-HF)

Fig.1 - Output Characteristics

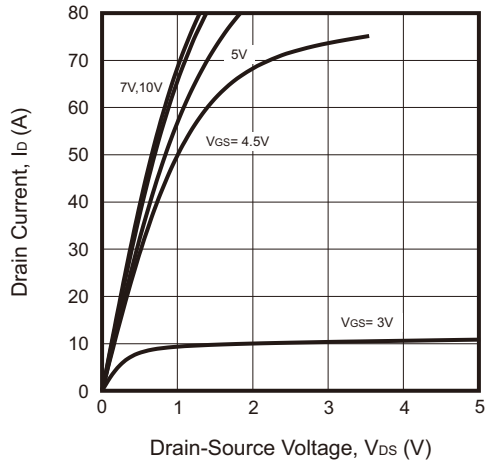


Fig.2 - On-Resistance vs. Drain Current and Gate Voltage

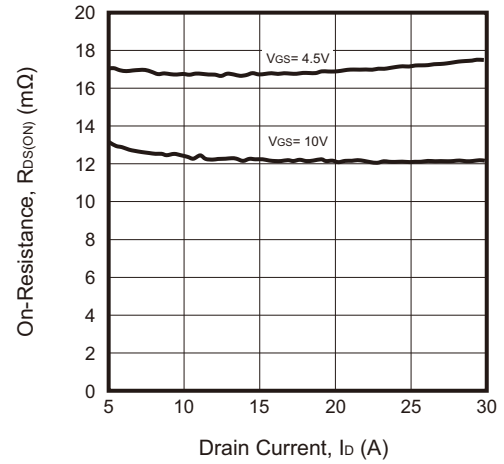


Fig.3 - On-Resistance vs. Gate-Source Voltage

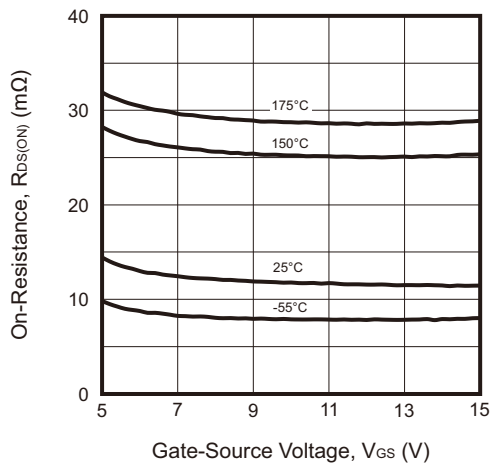


Fig.4 - Body-Diode Characteristics

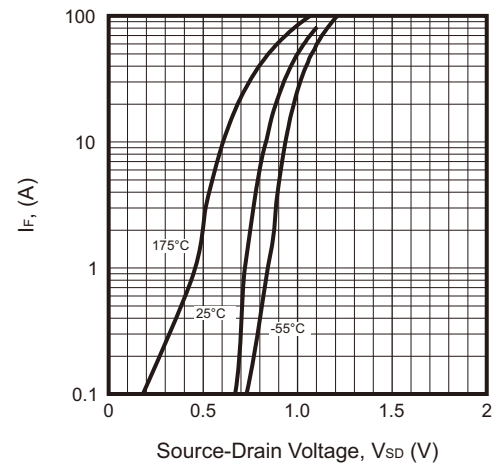


Fig.5 - On-Resistance vs. Junction Temperature

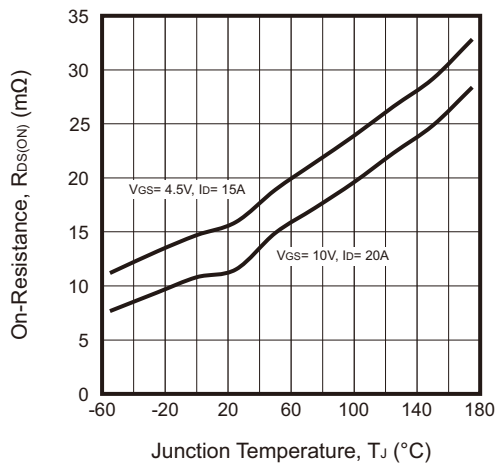
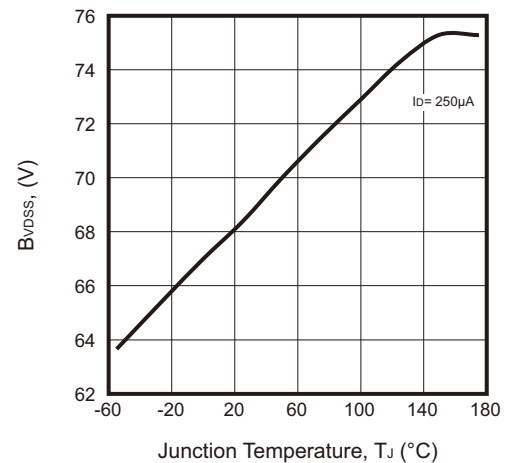


Fig.6 - Drain-Source vs. Junction Temperature



Rating and Characteristic Curves (CMS25NN06H8-HF)

Fig.7 - Capacitance Characteristics

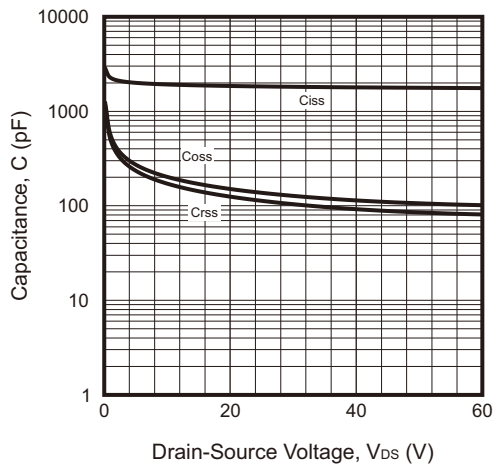


Fig.8 - Gate Voltage vs. Junction Temperature

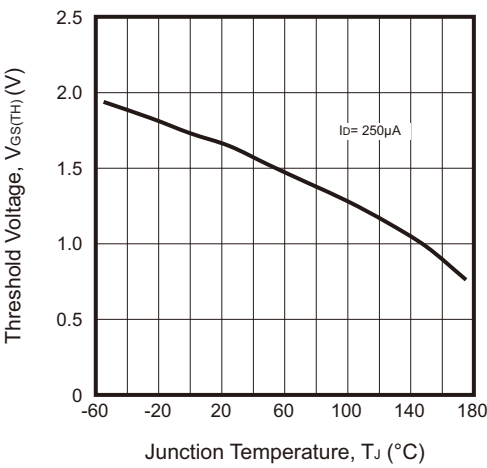


Fig.9 - Transfer Characteristics

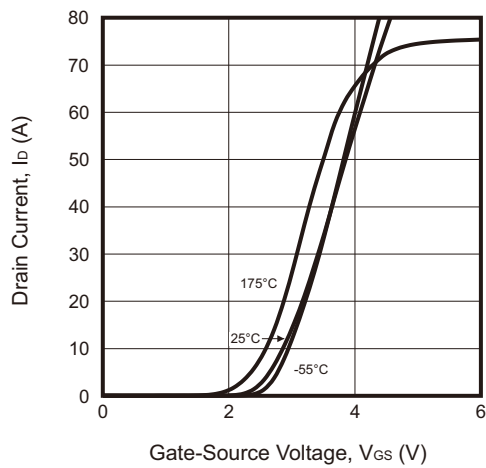
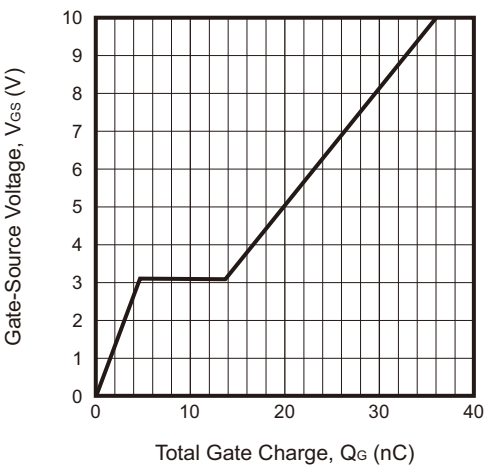
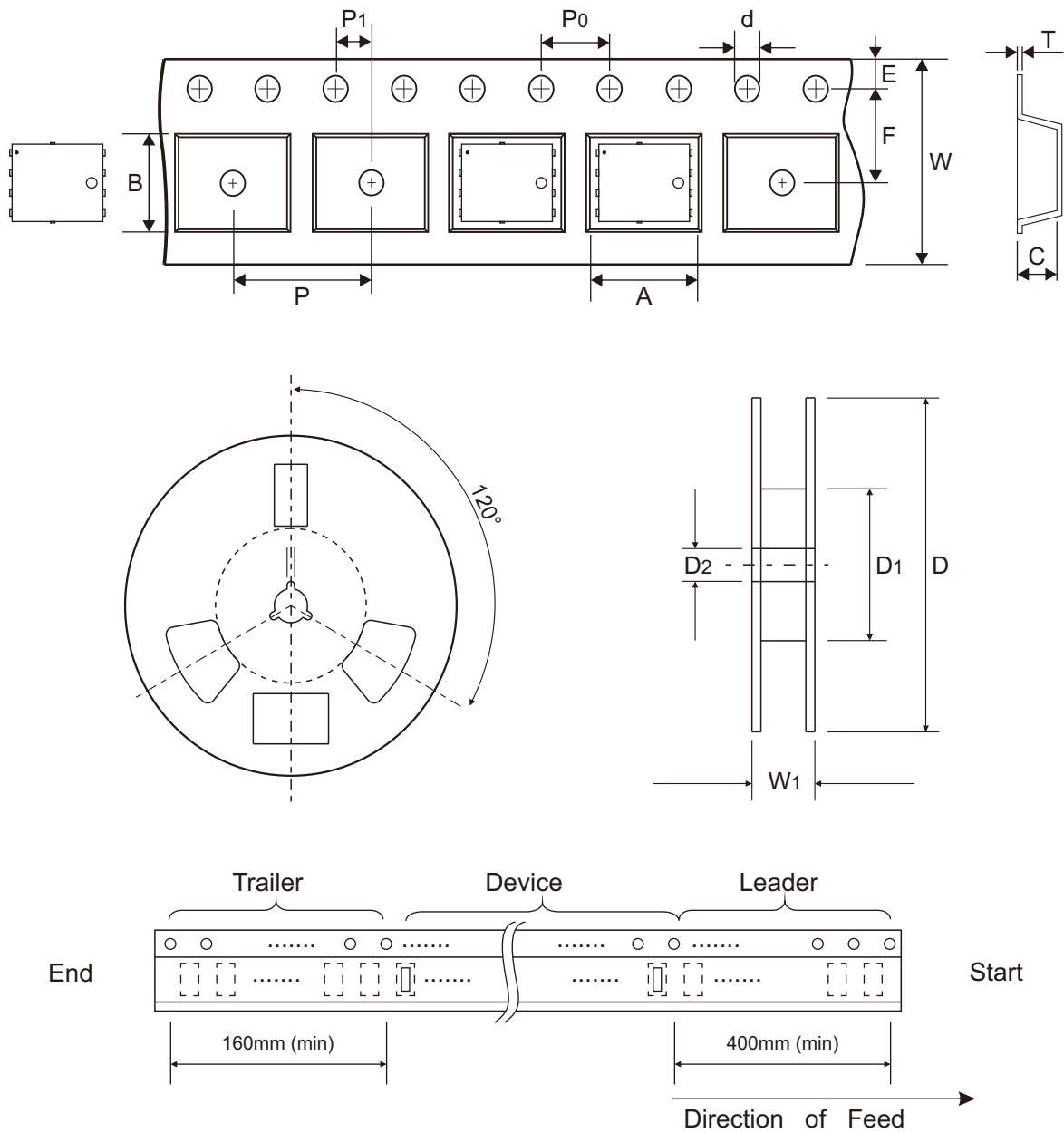


Fig.10 - Gate Charge Characteristics



Reel Taping Specification

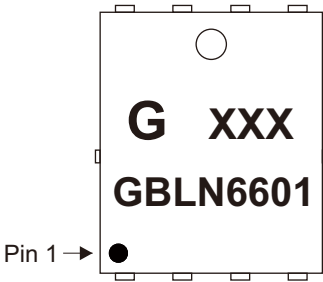


PDFN5x6 -8L	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	6.30 ± 0.10	5.30 ± 0.10	1.20 ± 0.10	1.55 ± 0.01	330 ± 2.00	100 ± 2.00	13.00 ± 0.20
	(inch)	0.248 ± 0.004	0.209 ± 0.004	0.047 ± 0.004	0.061 ± 0.0004	12.992 ± 0.079	3.937 ± 0.079	0.512 ± 0.008

PDFN5x6 -8L	SYMBOL	E	F	P	P0	P1	T	W	W1
	(mm)	1.75 ± 0.10	5.50 ± 0.10	8.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.25 ± 0.03	12.00 + 0.30 - 0.10	18.50 ± 2.00
	(inch)	0.069 ± 0.004	0.217 ± 0.004	0.315 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.010 ± 0.001	0.472 + 0.012 - 0.004	0.728 ± 0.079

Marking Code

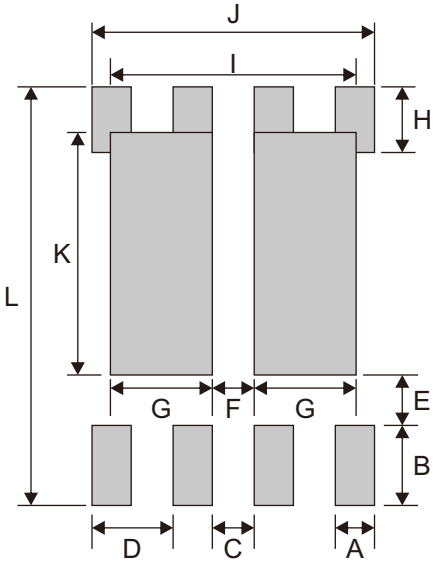
Part Number	Marking Code
CMS25NN06H8-HF	GBLN6601



XXX = Control code

Suggested P.C.B. PAD Layout

SIZE	PDFN5x6-8LC	
	(mm)	(inch)
A	0.61	0.024
B	1.27	0.050
C	0.66	0.026
D	1.27	0.050
E	0.82	0.032
F	0.61	0.024
G	1.65	0.065
H	1.02	0.040
I	3.91	0.154
J	4.42	0.174
K	3.81	0.150
L	6.61	0.260



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
PDFN5x6-8LC	5,000	13