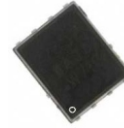


CMS45N10H8-HF

N-Channel
RoHS Device
Halogen Free



Features

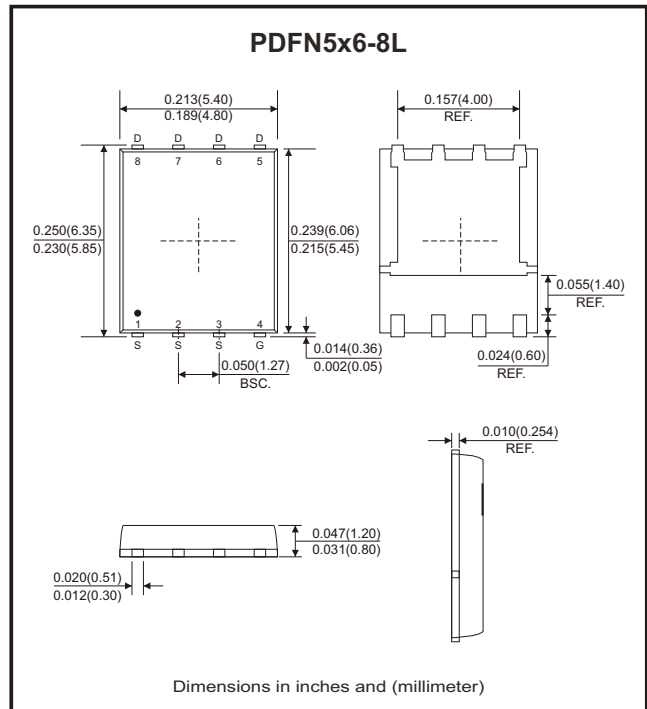
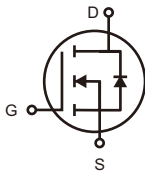
- Improved dv/dt capability.
- Fast switching.
- $R_{DS(ON)} \leq 20m\Omega @ V_{GS}=10V$.

Mechanical data

- Case: PDFN5x6-8L, molded plastic.
- Mounting position: Any.

Circuit Diagram

- G : Gate
- S : Source
- D : Drain



Maximum Ratings (at $T_C=25^\circ C$ unless otherwise noted)

Parameter	Conditions	Symbol	Value	Unit
Drain-source voltage		V_{DS}	100	V
Gate-source voltage		V_{GS}	± 20	V
Drain current-continuous	$T_C = 25^\circ C$	I_D	45	A
Drain current-pulsed	(Note 1)	I_{DM}	135	A
Single pulse avalanche energy	(Note 2)	E_{AS}	57	mJ
Power dissipation	$T_C = 25^\circ C$	P_D	94.7	W
Thermal resistance junction-ambient		$R_{\theta JA}$	62	$^\circ C/W$
Thermal resistance junction-case		$R_{\theta JC}$	1.32	$^\circ C/W$
Operating junction temperature range		T_J	-55 to +150	$^\circ C$
Storage temperature range		T_{STG}	-55 to +150	$^\circ C$

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Off Characteristics						
Drain-source breakdown voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 250\mu A$	100			V
Drain-source leakage current	I_{DSS}	$V_{DS} = 100V, V_{GS} = 0V$			1	μA
Gate-source leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
On Characteristics						
Static drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 10A$			20	m Ω
		$V_{GS} = 4.5V, I_D = 7A$			26	
Gate threshold voltage	$V_{GS(th)}$	$V_{GS} = V_{DS}, I_D = 250\mu A$	1.2	1.5	2.5	V
Dynamic and Switching Characteristics						
Total gate charge	Q_g	$V_{DS} = 50V, V_{GS} = 10V, I_D = 5A$		16.2		nC
Gate-source charge	Q_{GS}			2.8		
Gate-drain charge	Q_{GD}			4.1		
Turn-on delay time	$t_{d(on)}$	$V_{DS} = 50V, V_{GS} = 10V, R_G = 10\Omega, I_D = 5A$		16.6		nS
Rise time	t_r			3.8		
Turn-off delay time	$t_{d(off)}$			75.5		
Fall time	t_f			46		
Input capacitance	C_{iss}	$V_{DS} = 50V, V_{GS} = 0V, F = 100kHz$		1003.9		pF
Output capacitance	C_{oss}			185.4		
Reverse transfer capacitance	C_{rss}			9.8		
Drain-Source Diode Characteristics and Ratings						
Diode forward current	I_S	$V_{GS} < V_{th}$		30		A
Pulsed source current	I_{SP}	$V_G = V_D = 0V$, Force current		90		A

Notes: 1. Pulse width limited by maximum junction temperature.

2. $V_{DD}=50V, R_G=25\Omega, L=0.3mH$, starting $T_J=25^\circ\text{C}$.

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

Rating and Characteristic Curves (CMS45N10H8-HF)

Fig.1 - Output Characteristics

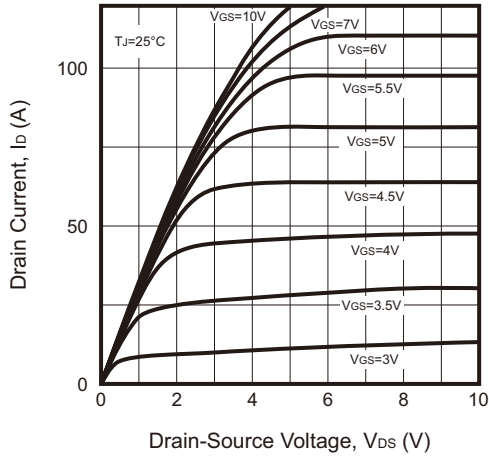


Fig.2 - Transfer Characteristics

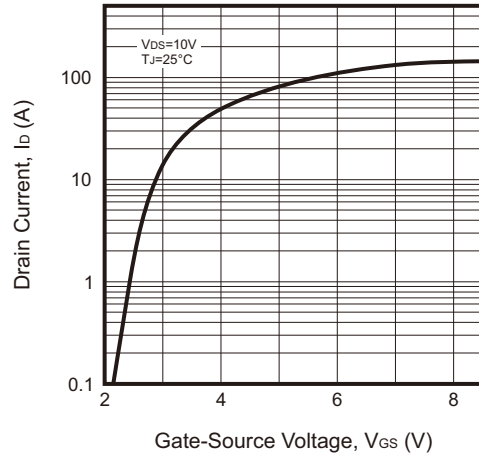


Fig.3 - Gate Charge Characteristics

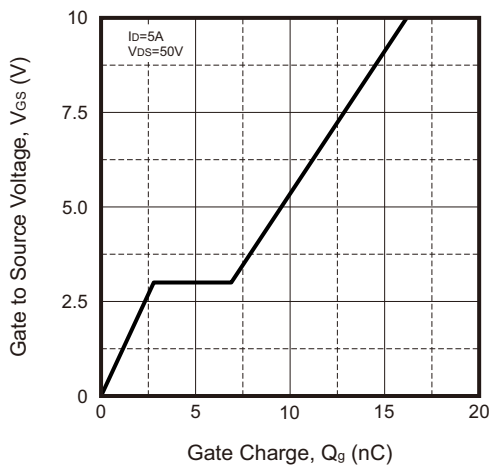


Fig.4 - Drain-Source Breakdown Voltage

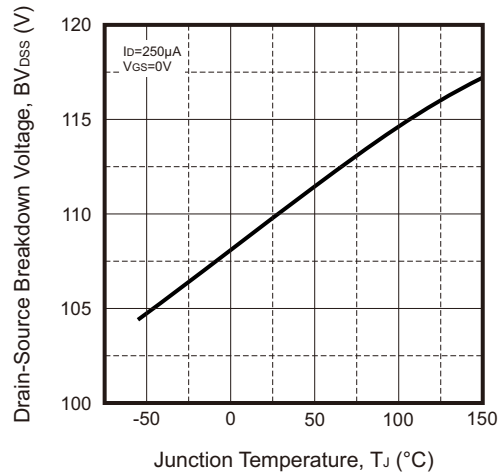


Fig.5 - Drain-Source On-State Resistance

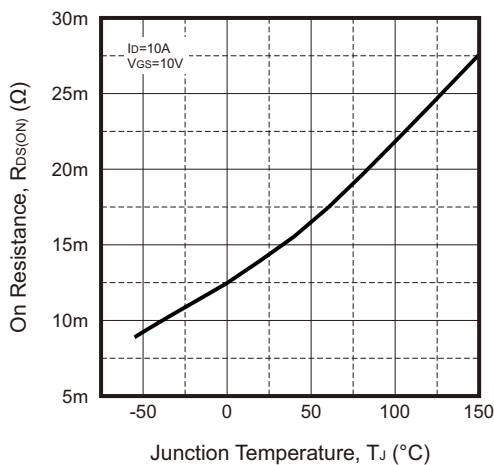
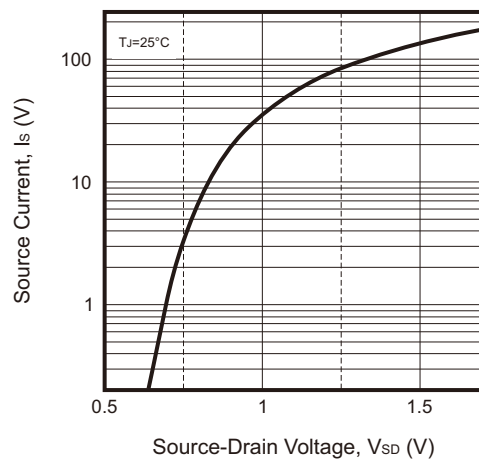
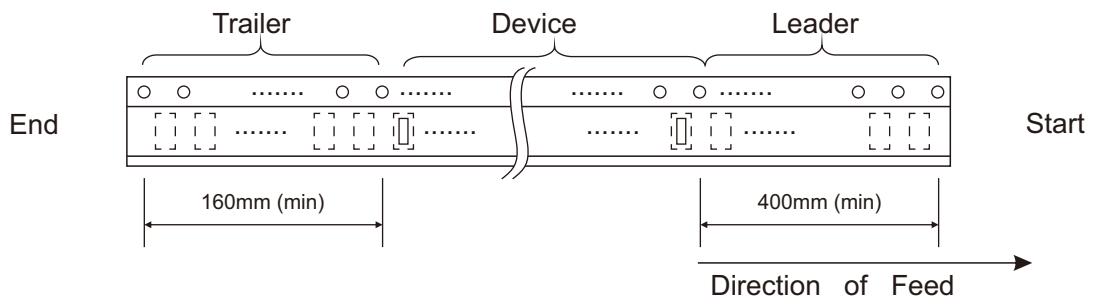
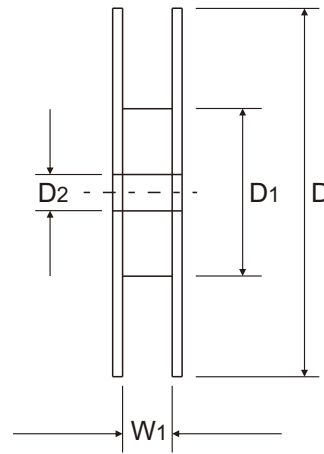
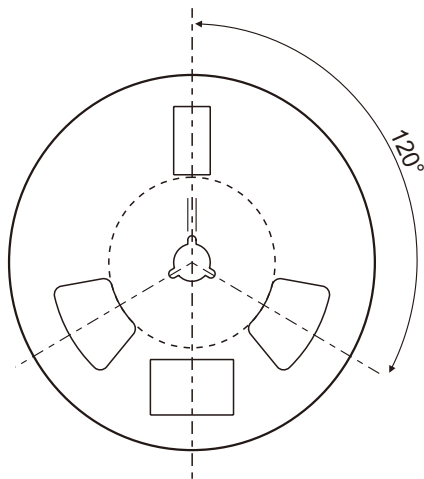
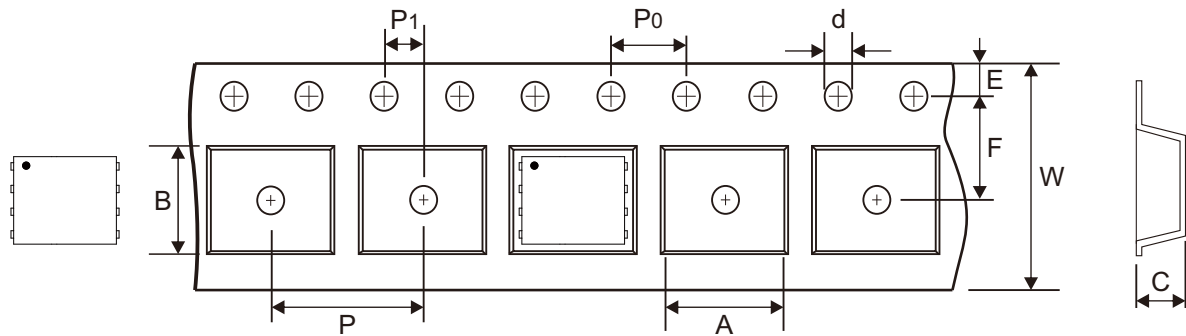


Fig.6 - Forward Characteristic of Body Diode



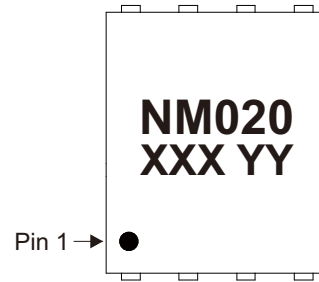
Reel Taping Specification



PDFN5x6-8L	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	6.50 ± 0.10	5.39 ± 0.21	1.65 ± 0.45	1.50 + 0.10	330 ± 4.00	95.00 Min	13.00 ± 0.50
	(inch)	0.256 ± 0.004	0.212 ± 0.008	0.065 ± 0.018	0.059 + 0.004	12.992 ± 0.157	3.740 Min	0.512 ± 0.020
PDFN5x6-8L	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	5.50 ± 0.10	8.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	12.00 ± 0.30	12.45 ± 2.05
	(inch)	0.069 ± 0.004	0.217 ± 0.004	0.315 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.472 ± 0.012	0.490 ± 0.081

Marking Code

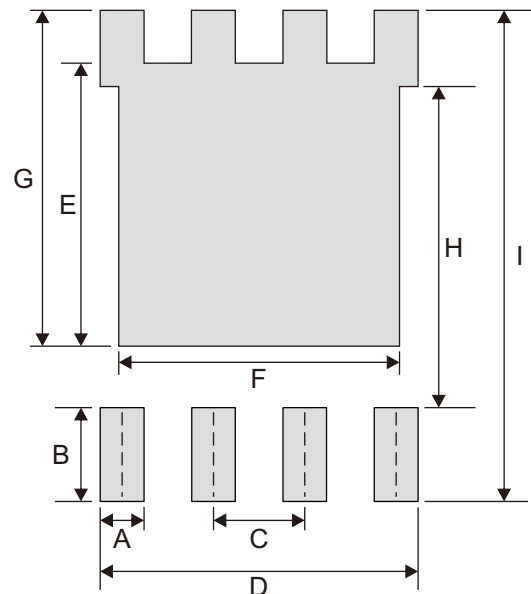
Part Number	Marking Code
CMS45N10H8-HF	NM020



XXX YY = Control code

Suggested P.C.B. PAD Layout

SIZE	PDFN5x6-8L	
	(mm)	(inch)
A	0.61	0.024
B	1.27	0.050
C	1.27	0.050
D	4.42	0.174
E	3.81	0.150
F	3.91	0.154
G	4.52	0.178
H	4.32	0.170
I	6.61	0.260



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
PDFN5x6-8L	3,000	13