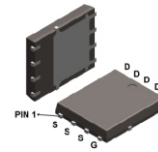


CMS71P03H8-HF

P-Channel
RoHS Device
Halogen Free



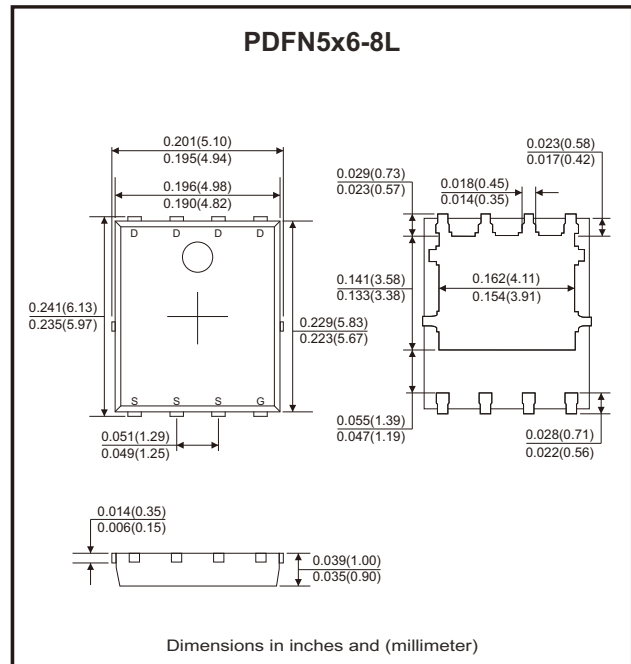
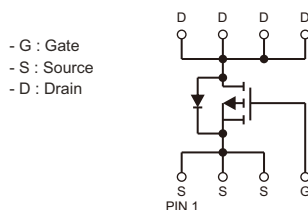
Features

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

Mechanical data

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

Circuit Diagram



Maximum Ratings (at TA=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DSS}	-30	V
Gate-source voltage	V_{GSS}	±20	V
Continuous drain current ($T_c=25^\circ\text{C}$)	I_D	-71	A
Continuous drain current ($T_c=100^\circ\text{C}$)	I_D	-45	
Pulsed drain current ($t_p=10\mu\text{s}$, $T_c=25^\circ\text{C}$)	I_{DM}	-284	A
Single pulse avalanche energy (Note 3)	E_{AS}	82	mJ
Power dissipation ($T_c=25^\circ\text{C}$)	P_D	52	W
Operating junction temperature range	T_J	-55 to +150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Parameter	Symbol	Min	Typ	Max	Unit
Thermal resistance junction to case	$R_{\theta JC}$		2.1	2.4	°C/W
Thermal resistance junction to air (Note 1)	$R_{\theta JA}$		26	45	°C/W

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_{DSS}	$V_{GS} = 0V, I_D = -250\mu A$	-30			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -24V, V_{GS} = 0V, T_C = 25^\circ\text{C}$			-1	μA
		$V_{DS} = -24V, V_{GS} = 0V, T_C = 55^\circ\text{C}$			-5	
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
On Characteristics						
Drain-source on-resistance (Note 2)	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -20A$		5.4	6	m Ω
		$V_{GS} = -4.5V, I_D = -15A$		7.6	9	
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1	-1.5	-2.5	V
Gate resistance	R_G	$V_{GS} = 0V, f = 1\text{MHz}$		6.6		Ω
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = -15V, f = 1\text{MHz}$		4665		pF
Output capacitance	C_{oss}			502		
Reverse transfer capacitance	C_{rss}			441		
Switching Characteristics						
Turn-on delay time (Note 4)	$t_{d(on)}$	$V_{DD} = -15V, V_{GS} = -10V, R_G = 3\Omega, I_D = -20A$		11		ns
Turn-on rise time (Note 4)	t_r			14		
Turn-off delay time (Note 4)	$t_{d(off)}$			50		
Turn-off fall time (Note 4)	t_f			21		
Total gate charge	Q_g	$V_{DD} = -15V, V_{GS} = -10V, I_D = -20A$		81		nC
Gate to source charge	Q_{gs}			11		
Gate to drain (miller) charge	Q_{gd}			14		
Source-Drain Diode Characteristics						
Diode forward voltage (Note 2)	V_{SD}	$I_{SD} = -1A, V_{GS} = 0V, T_J = 25^\circ\text{C}$		-0.7	-1.2	V
Reverse Recovery time	t_{rr}	$I_{SD} = -14A, V_{GS} = 0V, di/dt = 100A/\mu s$		163		ns
Reverse recovery charge	Q_{rr}			256		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 $\leq 300\mu s$, duty cycle $\leq 2\%$.

3. The EAS data shows Max. rating. The test condition is $V_{DD}=-20V, V_{GS}=-10V, L=0.1\text{mH}$.

4. Guaranteed by design, not subject to production.

Rating and Characteristic Curves (CMS71P03H8-HF)

Fig.1 - Typical Output Characteristics

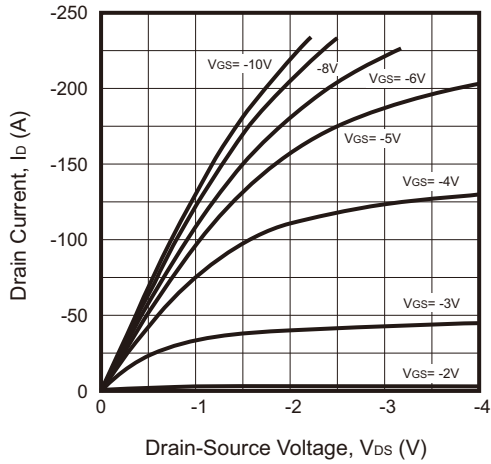


Fig.2 - On-Resistance vs. Drain Current and Gate Voltage

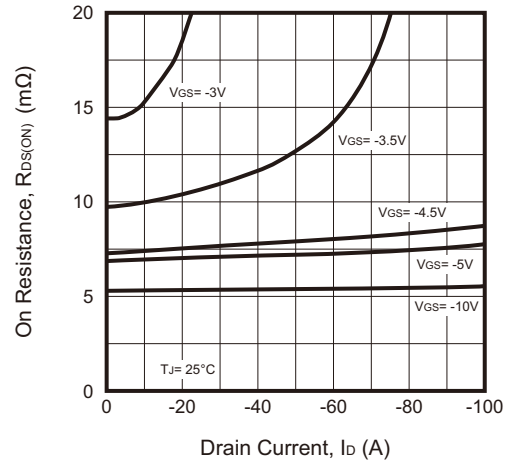


Fig.3 - $V_{GS(th)}$ vs. Junction Temperature

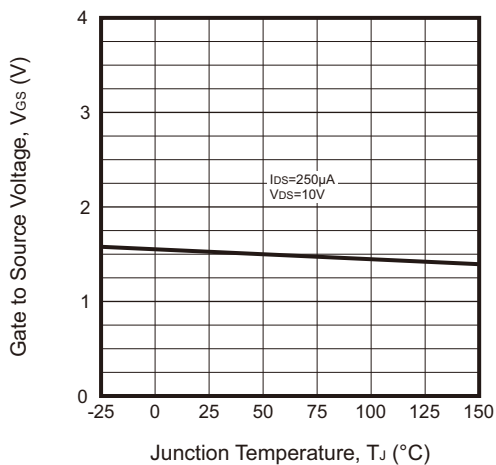


Fig.4 -Body-Diode Characteristics

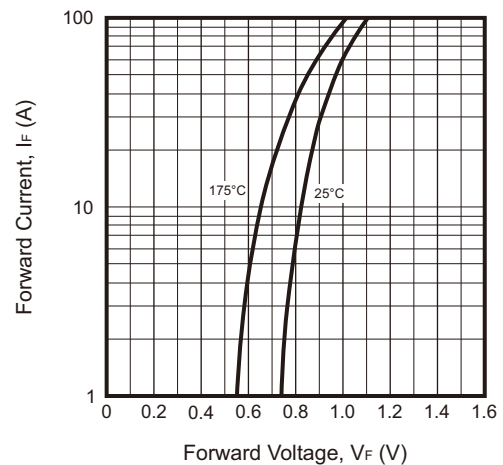


Fig.5 - Normalized On-Resistance vs. Junction Temperature

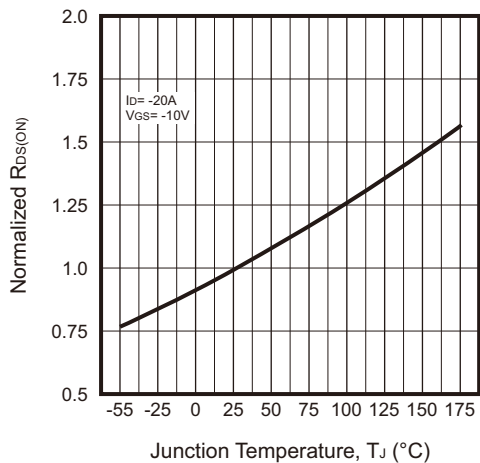
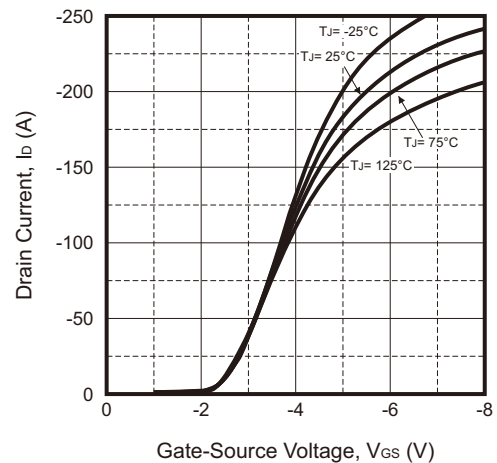


Fig.6 - Transfer Characteristics



Rating and Characteristic Curves (CMS71P03H8-HF)

Fig.7 - Capacitance Characteristics

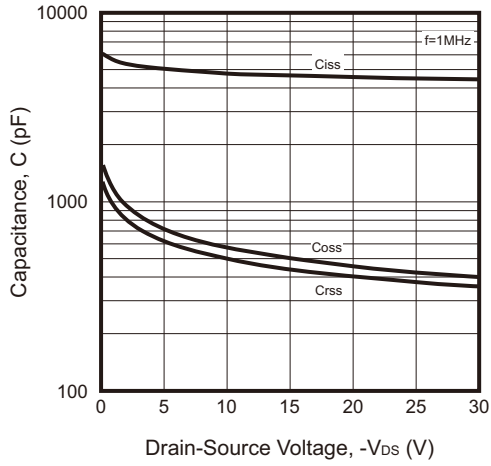


Fig.8 - Gate-Change Characteristics

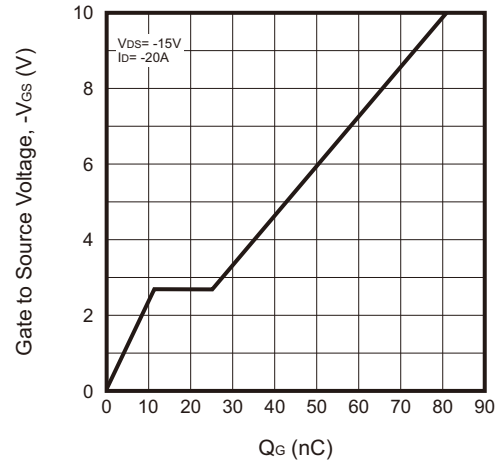


Fig.9 - Breakdown Voltage vs. Junction Temperature

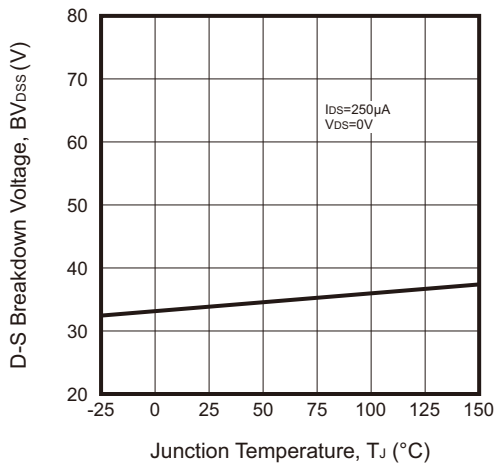
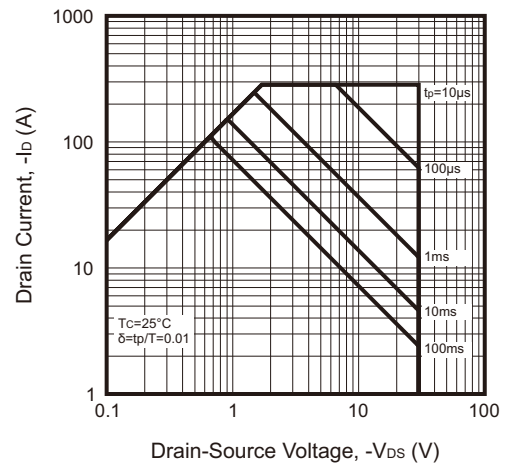
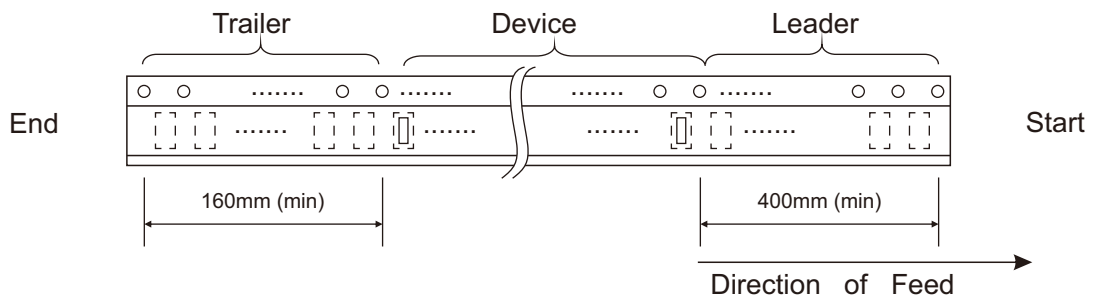
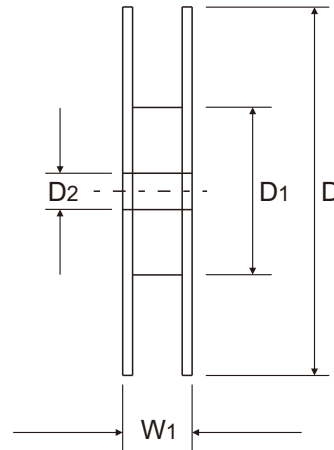
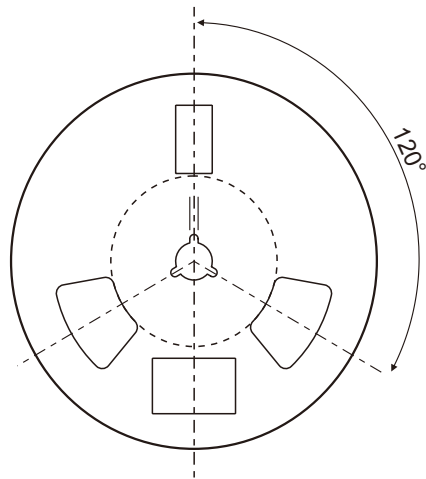
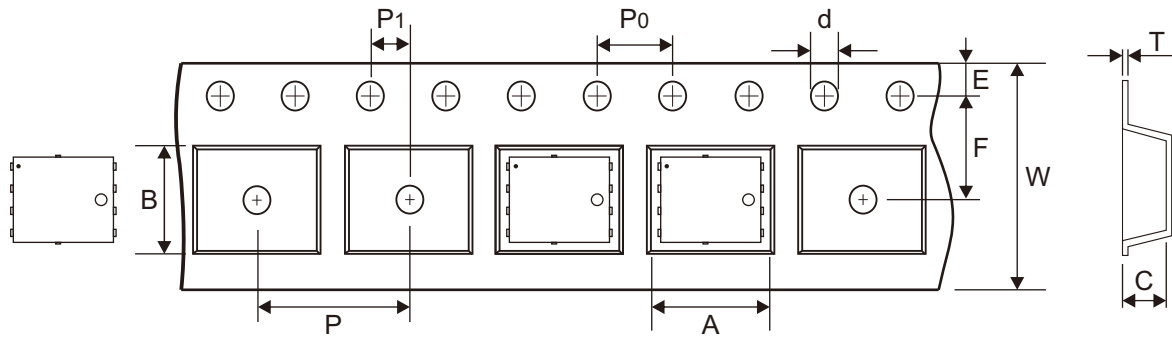


Fig.10 - Safe Operating Area



Reel Taping Specification

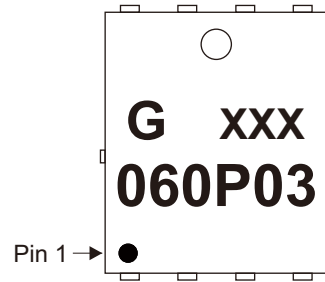


PDFN5x6-8L	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	6.30 ± 0.10	5.30 ± 0.10	1.20 ± 0.10	1.55 + 0.01	330 ± 1.00	100 ± 1.00	13.00 ± 0.20
	(inch)	0.248 ± 0.004	0.209 ± 0.004	0.047 ± 0.004	0.061 + 0.0004	12.992 ± 0.039	3.937 ± 0.039	0.512 ± 0.008

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	17.80 ± 0.30
	(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	0.701 ± 0.012

Marking Code

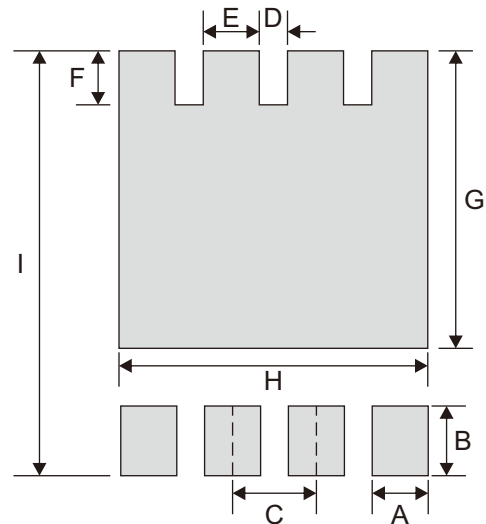
Part Number	Marking Code
CMS71P03H8-HF	060P03



XXX = Control code

Suggested P.C.B. PAD Layout

SIZE	PDFN5x6-8L	
	(mm)	(inch)
A	0.80	0.031
B	1.00	0.039
C	1.27	0.050
D	0.47	0.019
E	0.80	0.031
F	0.85	0.033
G	4.50	0.177
H	4.61	0.181
I	6.40	0.252



Standard Packaging

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