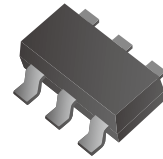


CMS03P06T6-HF

P-Channel

RoHS Device

Halogen Free



Features

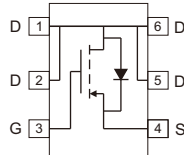
- Low on resistance.
- Low gate charge.
- Fast switching characteristic.

Mechanical data

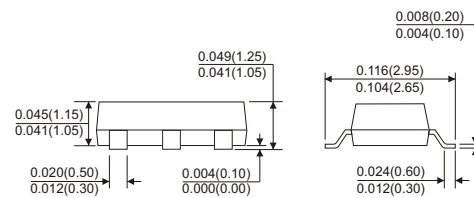
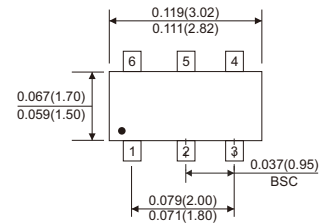
- Case: SOT-26, molded plastic.
- Mounting position: Any.

Circuit Diagram

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



SOT-26



Dimensions in inches and (millimeter)

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

Parameter	Conditions	Symbol	Value	Unit
Drain-source voltage		V_{DS}	-60	V
Gate-source voltage		V_{GS}	±20	
Continuous drain current	$V_{GS} = -10V, T_C = 25^\circ C$ (Note 1)	I_D	-3.8	A
	$V_{GS} = -10V, T_C = 100^\circ C$ (Note 1)	I_D	-2.4	
	$V_{GS} = -10V, T_A = 25^\circ C$ (Note 2)	I_D	-3	
	$V_{GS} = -10V, T_A = 70^\circ C$ (Note 2)	I_D	-2.4	
Pulsed drain current	(Note 3)	I_{DM}	-15	A
Continuous body diode forward current	$T_C = 25^\circ C$ (Note 1)	I_S	-2.5	A
Total power dissipation	$T_C = 25^\circ C$ (Note 1)	P_D	3.1	W
	$T_C = 100^\circ C$ (Note 1)	P_D	1.2	
	$T_A = 25^\circ C$ (Note 2)	P_D	2	
	$T_A = 70^\circ C$ (Note 2)	P_D	1.3	
Operating junction and storage temperature range		T_J, T_{STG}	-55 to +150	°C
Thermal resistance junction-case		$R_{\theta JC}$	40	°C/W
Thermal resistance junction-ambient	(Note 2)	$R_{\theta JA}$	63	

- Notes: 1. The power dissipation P_D is based on $T_J(MAX)=150^\circ C$, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heatsinking is used.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in² FR-4 board with 2oz. copper, in a still air environment with $T_A=25^\circ C$. The power dissipation P_D is based on $R_{\theta JA}$ and the maximum allowed junction temperature of $150^\circ C$. The value in any given application depends on the user's specific board design.
3. Repetitive rating, pulse width limited by junction temperature $T_J(MAX)=150^\circ C$. Ratings are based on low frequency and low duty cycles to keep initial $T_J=25^\circ C$.

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Static						
Drain-source breakdown voltage	BV _{DSS}	V _{GS} = 0V, I _D = -250μA	-60			V
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1		-2.5	V
Forward transconductance	g _{fs}	V _{DS} = -15V, I _D = -3A		5.5		S
Gate-source leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
Drain-source leakage current	I _{DSS}	V _{DS} = -48V, V _{GS} = 0V			-1	μA
Static drain-source on-resistance	R _{DS(on)}	V _{GS} = -10V, I _D = -3A		79	104	mΩ
		V _{GS} = -4.5V, I _D = -2A		135	190	
Dynamic						
Input capacitance	C _{iss}	V _{DS} = -30V, V _{GS} = 0V, f = 1MHz		500		pF
Output capacitance	C _{oss}			51		
Reverse transfer capacitance	C _{rss}			37		
Gate resistance	R _g	f = 1MHz		6.6		Ω
Total gate charge (Note 1,2)	Q _g	V _{DS} = -30V, I _D = -3A, V _{GS} = -10V		11		nC
Gate-source charge (Note 1,2)	Q _{gs}			2		
Gate-drain charge (Note 1,2)	Q _{gd}			3.2		
Turn-on delay time (Note 1,2)	t _{d(on)}	V _{DS} = -30V, I _D = -3A, V _{GS} = -10V R _{GS} =3Ω		6.4		nS
Rise time (Note 1,2)	t _r			17		
Turn-off delay time (Note 1,2)	t _{d(off)}			25		
Fall time (Note 1,2)	t _f			7.2		
Source-drain diode						
Diode forward voltage (Note 1)	V _{SD}	I _S = -3A, V _{GS} = 0V		-0.84	-1.2	V
Reverse recovery time	t _{rr}	I _F = -3A, dI _F /dt = 100A/μs		13		nS
Reverse recovery charge	Q _{rr}			8		nC

Notes: 1. Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
 2. Independent of operating temperature.

Rating and Characteristic Curves (CMS03P06T6-HF)

Fig.1 - Typical Output Characteristics

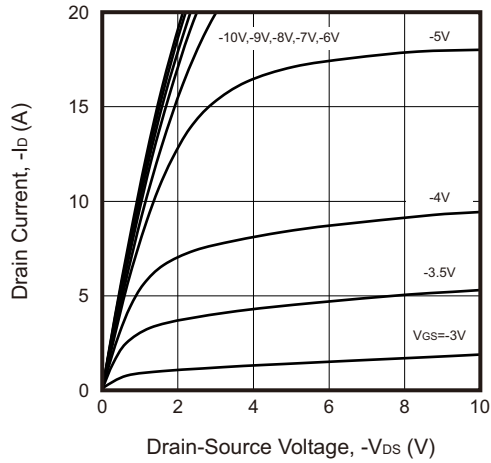


Fig.2 - Breakdown Voltage vs Ambient Temperature

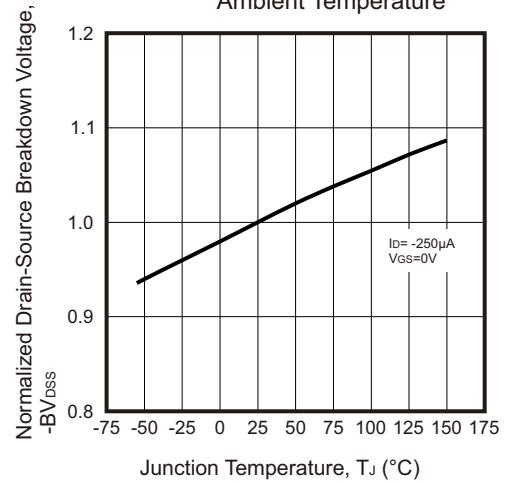


Fig.3 - Static Drain-Source On-State Resistance vs Drain Current

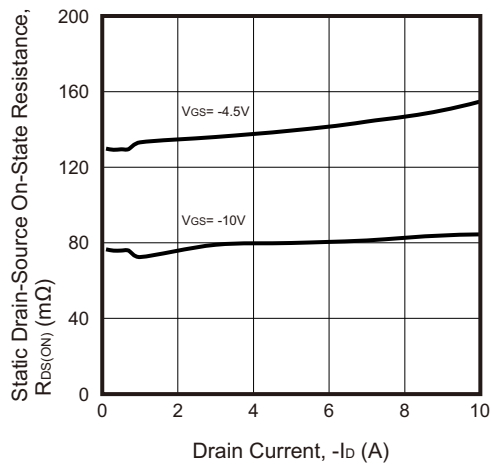


Fig.4 - Body Diode Current vs Source-Drain Voltage

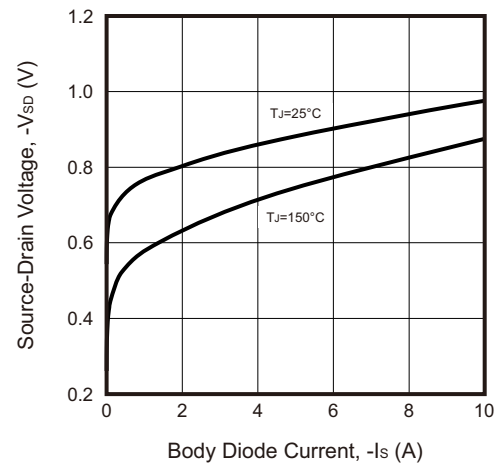


Fig.5 - Static Drain-Source On-State Resistance vs Gate-Source Voltage

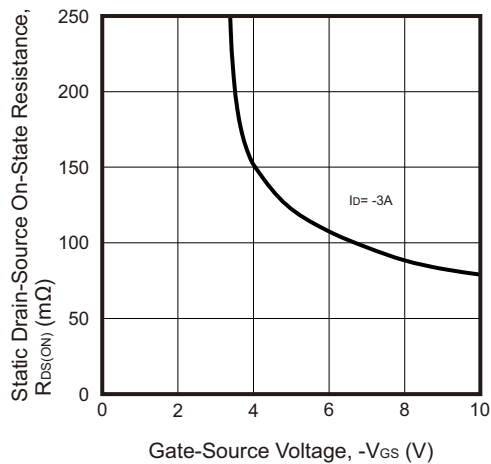
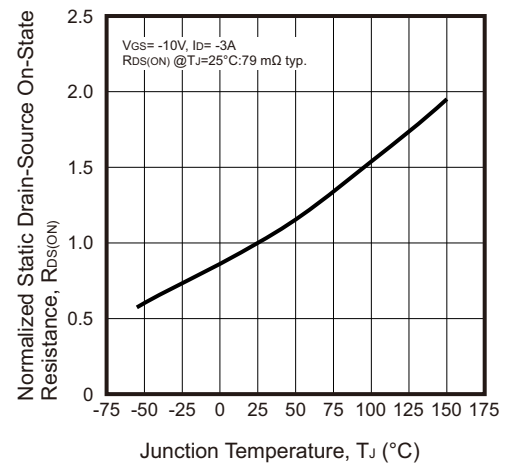


Fig.6 - Drain-Source On-State Resistance vs Junction Temperature



Rating and Characteristic Curves (CMS03P06T6-HF)

Fig.7 - Capacitance vs Drain-to-Source Voltage

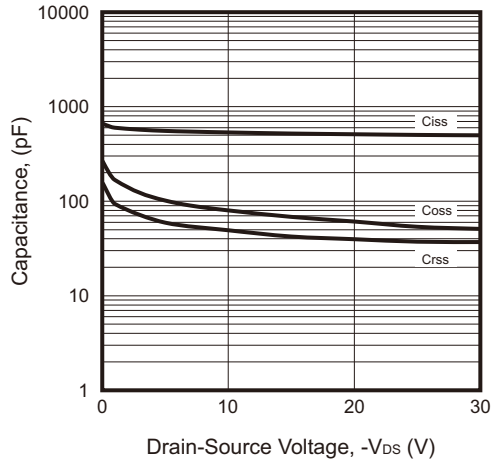


Fig.8 - Threshold Voltage vs Junction Temperature

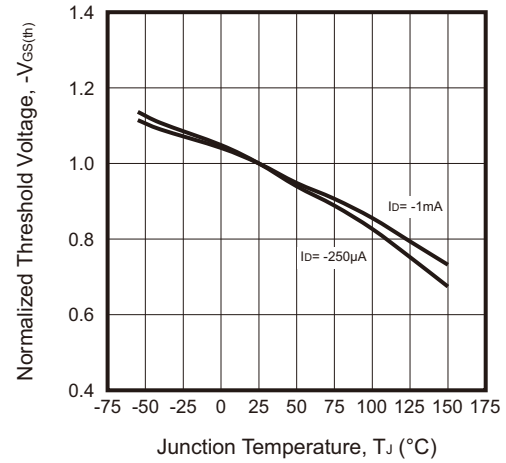


Fig.9 - Forward Transfer Admittance vs Drain Current

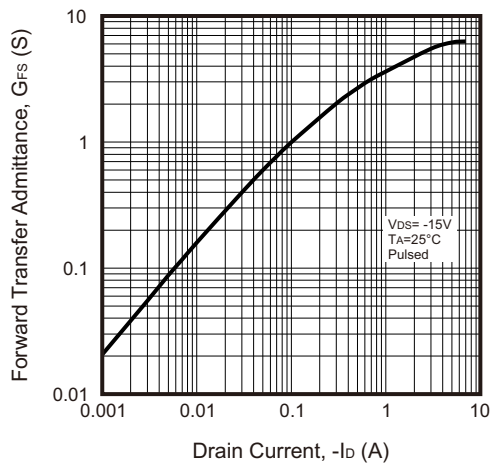


Fig.10 - Gate Charge Characteristics

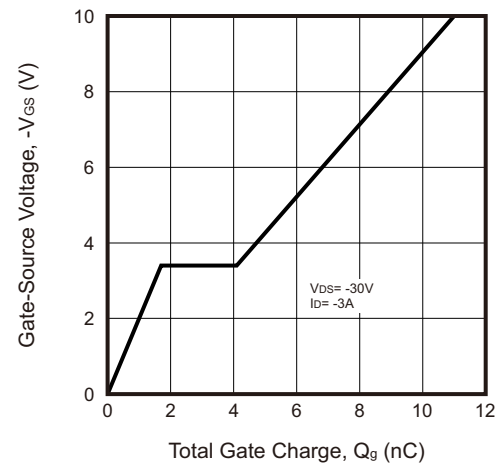


Fig.11 - Maximum Safe Operating Area

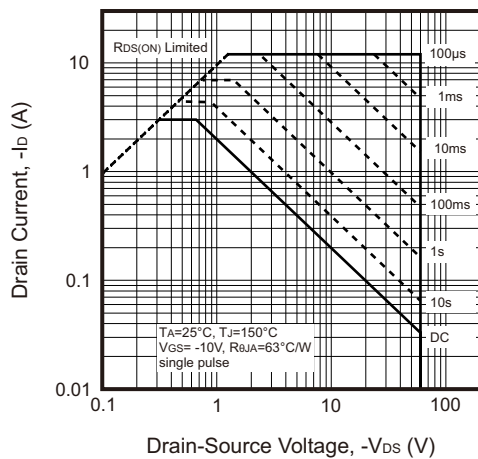
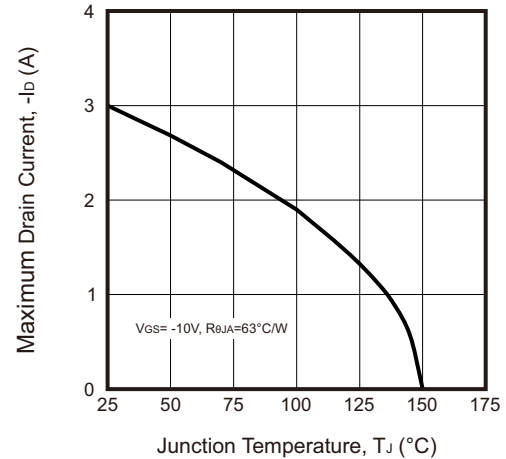
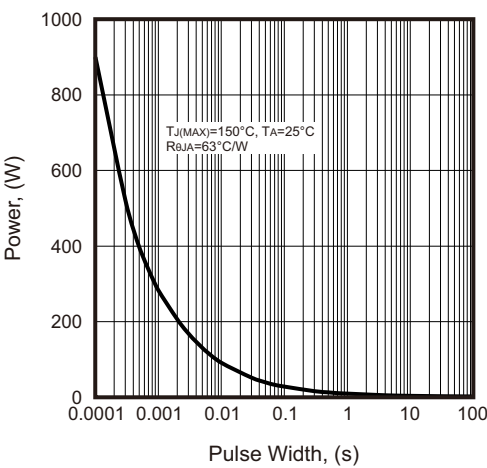


Fig.12 - Maximum Drain Current vs Junction Temperature

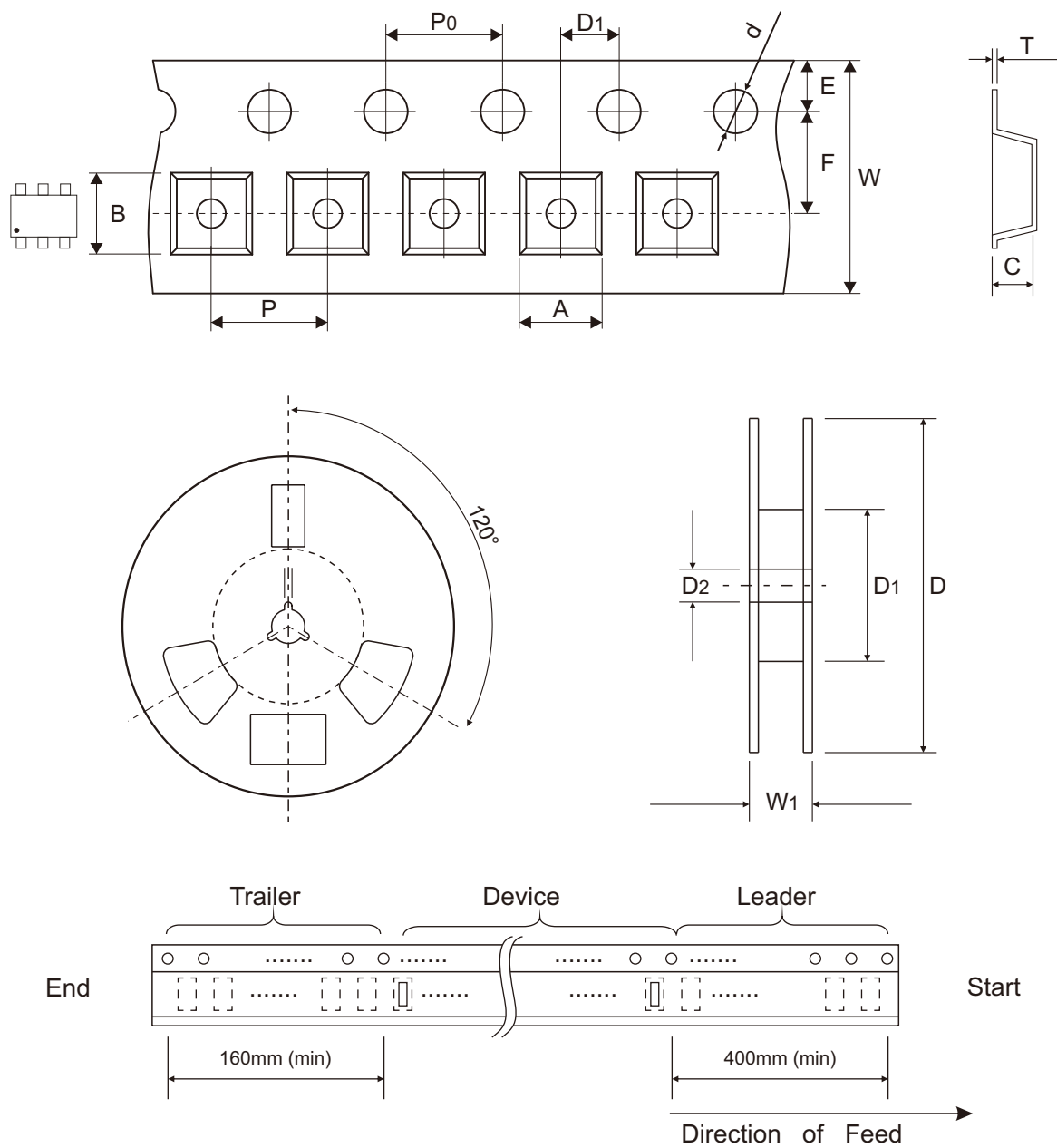


Rating and Characteristic Curves (CMS03P06T6-HF)

Fig.13 - Single Pulse Power Rating,
Junction to Ambient



Reel Taping Specification

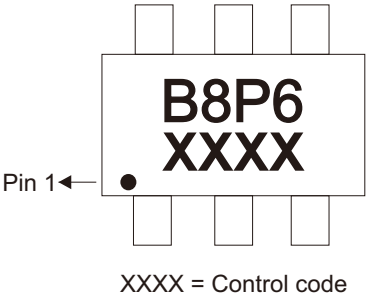


SOT-26	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.17 ± 0.10	3.23 ± 0.10	1.37 ± 0.10	1.55 ± 0.05	178 ± 1.00	60.00 + 1.00 - 0.00	13.50 ± 0.50
	(inch)	0.125 ± 0.004	0.127 ± 0.004	0.054 ± 0.004	0.061 ± 0.002	7.008 ± 0.039	2.362 + 0.039 - 0.000	0.512 ± 0.020

SOT-26	SYMBOL	E	F	P	P0	P1	T	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.229 ± 0.039	8.00 + 0.30 - 0.10	12.00 ± 0.05
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.009 ± 0.002	0.315 + 0.012 - 0.004	0.472 ± 0.002

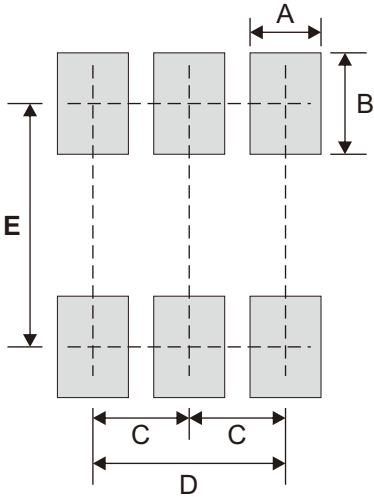
Marking Code

Part Number	Marking Code
CMS03P06T6-HF	B8P6 XXXX



Suggested P.C.B. PAD Layout

SIZE	SOT-26	
	(mm)	(inch)
A	0.70	0.028
B	1.00	0.039
C	0.95	0.037
D	1.90	0.075
E	2.40	0.094



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-26	3000	7

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