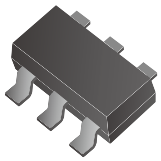
CMS02P06T6-HF

P-Channel
RoHS Device
Halogen Free



Features

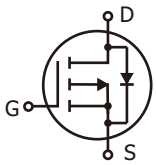
- Advanced high cell density trench technology.
- Super low gate charge.
- Excellent cdv/dt effect decline.
- Green device available.

Mechanical data

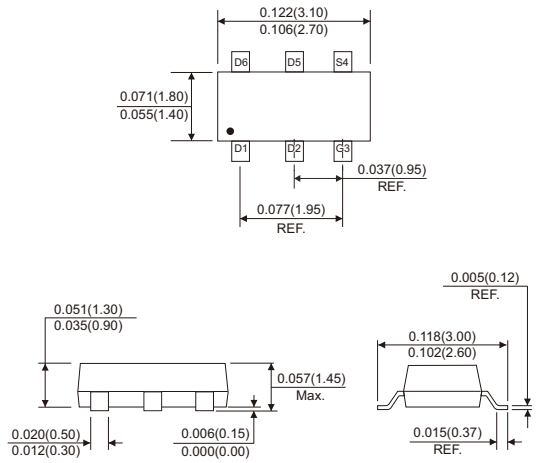
- Case: SOT-26 standard package, molded plastic.

Circuit Diagram

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



SOT-26



Dimensions in inches and (millimeter)

Maximum Ratings

Parameter	Conditions	Symbol	Value	Unit
Drain-source voltage		V_{DS}	-60	V
Gate-source voltage		V_{GS}	±20	V
Continuous drain current, V_{GS} @ 10V (Note 1)	I_D @ T_A = 25°C		-2.4	A
	I_D @ T_A = 70°C		-1.7	
Pulsed drain current (Note 2)		I_{DM}	-4.5	A
Power dissipation (Note 3)	P_D @ T_A = 25°C		1.1	W
Linear derating factor			0.009	W/°C
Operating junction temperature range		T_J	-55 to +150	°C
Storage temperature range		T_{STG}	-55 to +150	°C
Thermal resistance junction-ambient (Note 1)		$R_{\theta JA}$	110	°C/W

Electrical Characteristics (at T_J=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
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	-1.0		-3.0	V
Forward transconductance	g_{fs}	V_{DS} = -10V, I_D = -2A		5.8		S
Gate-source leakage current	I_{GSS}	V_{GS} = ±20V			±100	nA
Drain-source leakage current (Tj=25°C)	I_{DSS}	V_{DS} = -48V, V_{GS} = 0V			-1	μA
Drain-source leakage current (Tj=55°C)		V_{DS} = -48V, V_{GS} = 0V			-5	
Static drain-source on-resistance (Note 2)	$R_{DS(on)}$	V_{GS} = -10V, I_D = -2A			175	mΩ
		V_{GS} = -4.5V, I_D = -1A			220	
Total gate charge (Note 2)	Q_g	V_{DS} = -20V, I_D = -2A, V_{GS} = -4.5V		4.6		nC
Gate-source charge	Q_{gs}			1.39		
Gate-drain ("miller") charge	Q_{gd}			1.62		
Turn-on delay time (Note 2)	$t_{d(on)}$	V_{DS} = -15V, V_{GS} = -10V I_D = -1A, R_G = 3.3Ω		17.4		nS
Rise time	t_r			5.4		
Turn-off delay time	$t_{d(off)}$			37.2		
Fall time	t_f			2.4		
Input capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -15V, f = 1MHz		531		pF
Output capacitance	C_{oss}			59		
Reverse transfer capacitance	C_{rss}			38		
Source-drain diode						
Diode forward voltage (Note 2)	V_{SD}	I_S = -1A, V_{GS} = 0V, T_J=25°C			-1.2	V
Continuous source current (Note 1, 4)	I_S	V_G = V_D = 0V, Force current			-2.4	A
Pulsed source current (Note 2, 4)	I_{SM}				-4.5	A

Notes: 1. Surface mounted on a 1 inch² FR-4 board with 2 oz copper.
2. The data tested by pulsed, pulse width ≤300μs, duty cycle ≤ 2%.
3. The power dissipation is limited by 150°C junction temperature.
4. The data is theoretically the same as ID and IDM, in real applications, should be limited by total power dissipation.

Rating and Characteristic Curves (CMS02P06T6-HF)

Fig.1 - Typical Output Characteristics

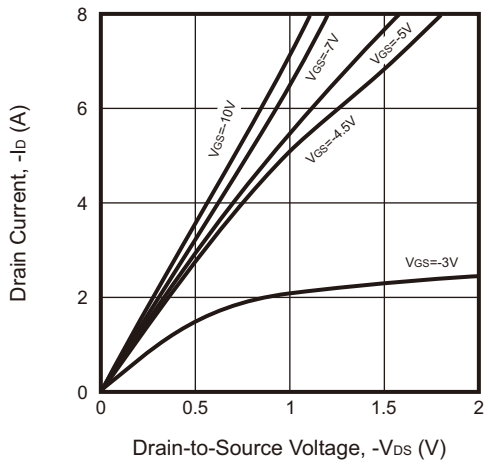


Fig.2 - On-Resistance vs. G-S Voltage

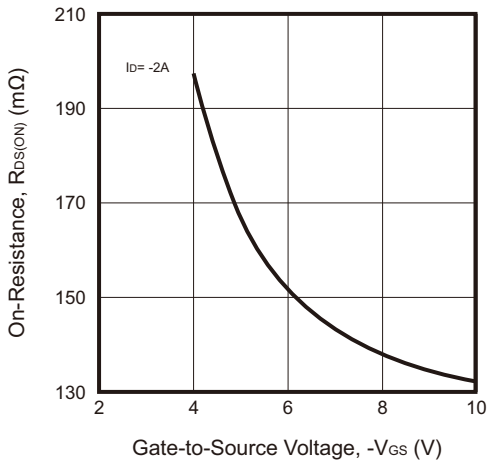


Fig.3 - Normalized $V_{GS(th)}$ vs. T_J

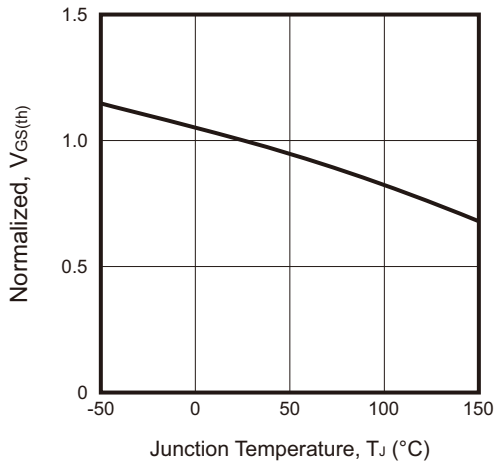


Fig.4 - Normalized $R_{DS(ON)}$ vs. T_J

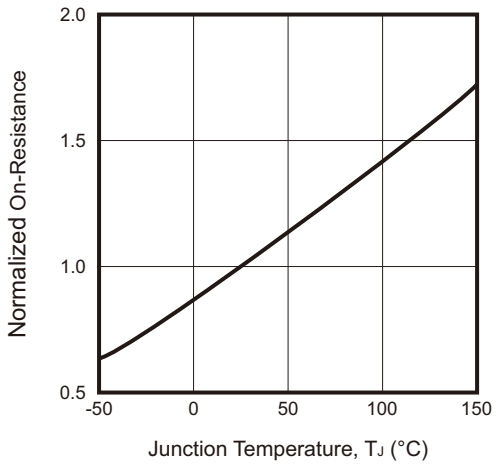


Fig.5 - Safe Operating Area

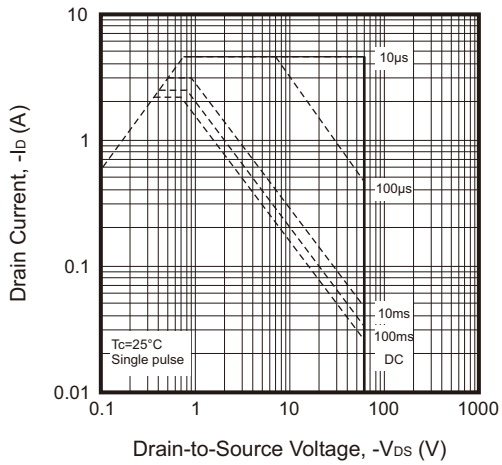
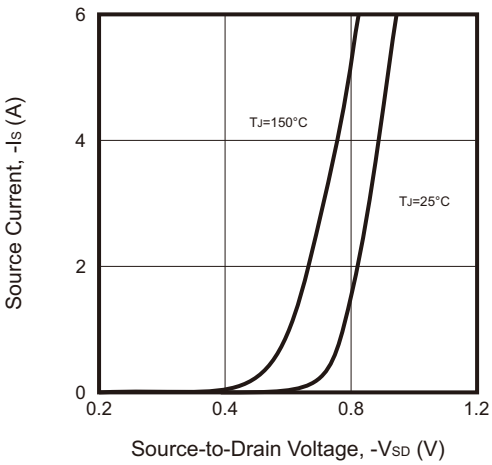


Fig.6 - Forward Characteristics of Reverse



Rating and Characteristic Curves (CMS02P06T6-HF)

Fig.7 - Gate Charge Characteristics

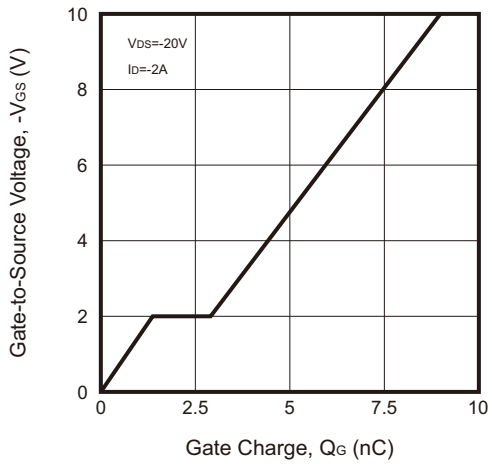
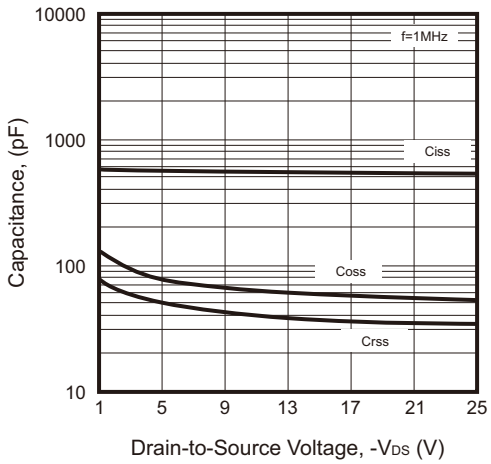
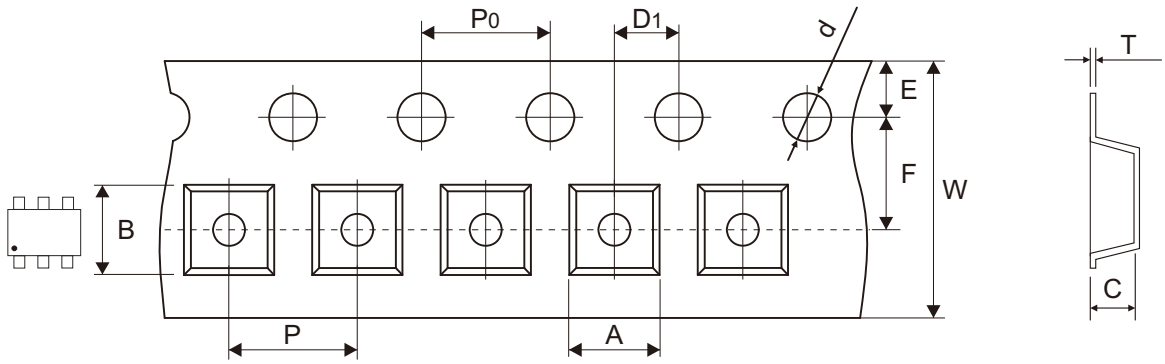
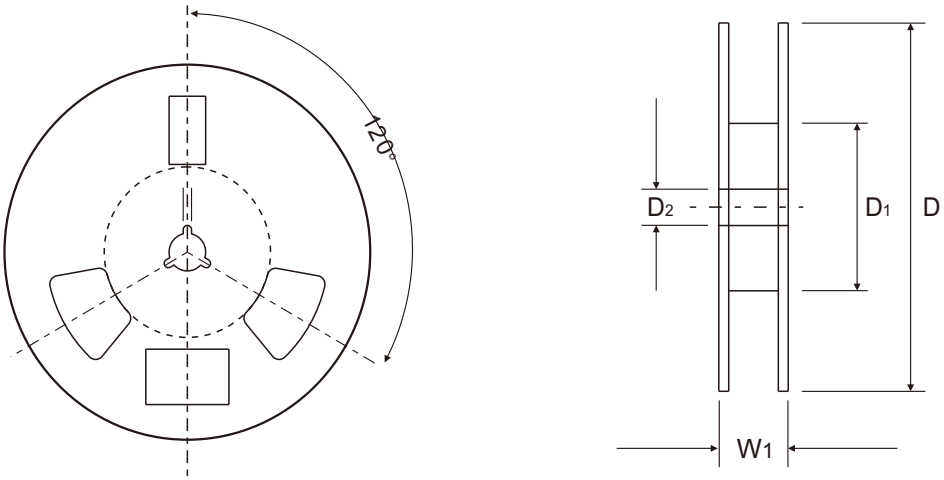


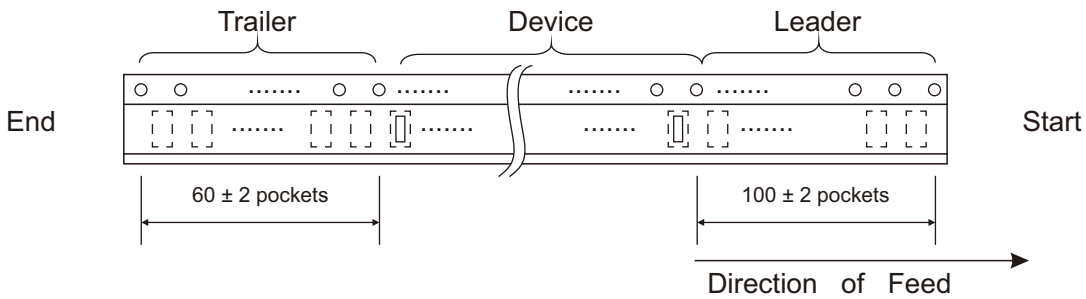
Fig.8 - Capacitance Characteristics



Reel Taping Specification





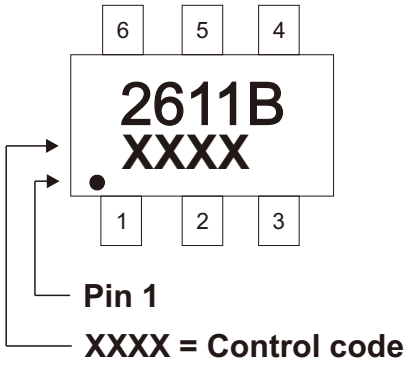


	SYMBOL	A	B	C	d	D	D1	D2
SOT-26	(mm)	3.30 ± 0.10	3.24 ± 0.10	1.45 ± 0.10	1.50 + 0.10 − 0.00	178 ± 0.50	54.5 + 2.50 − 0.00	13.00 + 0.35 − 0.15
	(inch)	0.130 ± 0.004	0.128 ± 0.004	0.057 ± 0.004	0.059 + 0.004 − 0.000	7.008 ± 0.020	2.146 + 0.098 − 0.000	0.512 + 0.014 − 0.006

	SYMBOL	E	F	P	P0	P1	T	W	W1
SOT-26	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	0.23 ± 0.04	8.00 + 0.30 − 0.10	12.00 + 1.50 − 0.50
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	0.009 ± 0.002	0.315 + 0.012 − 0.004	0.472 + 0.059 − 0.020

Marking Code

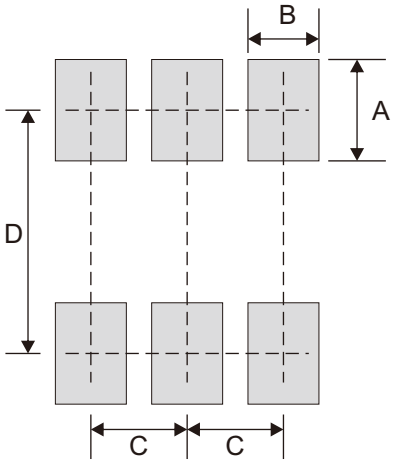
Part Number	Marking Code
CMS02P06T6-HF	2611B



Suggested PAD Layout

SIZE	SOT-23-6	
	(mm)	(inch)
A	1.00	0.039
B	0.70	0.028
C	0.95	0.037
D	2.40	0.094

Note: 1. The pad layout is for reference purposes only.



Standard Packaging

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