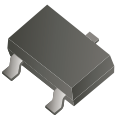


CMS01P10T-HF

P-Channel
RoHS Device
Halogen Free



Features

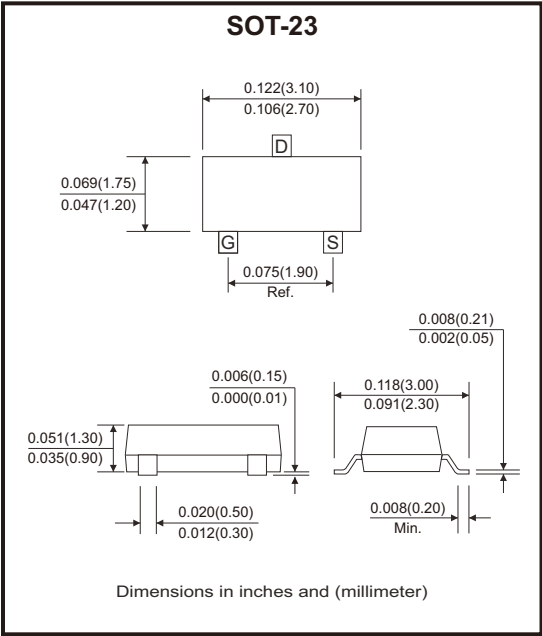
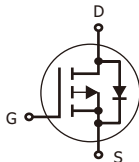
- Advanced high cell density trench technology.
- Super low gate charge.
- Excellent CdV/dt effect decline.
- Green device available.

Mechanical data

- Case: SOT-23, molded plastic.

Circuit Diagram

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



Maximum Ratings

Parameter	Conditions	Symbol	Value	Unit
Drain-source voltage		V_{DS}	-100	V
Gate-source voltage		V_{GS}	± 20	V
Continuous drain current (Note 1)	$I_D @ T_A = 25^\circ C$		-1.2	A
	$I_D @ T_A = 70^\circ C$		-1	
Pulsed drain current (Note 1, 2)	$I_{DM} @ T_A = 25^\circ C$	I_{DM}	-5	A
Total power dissipation (Note 3)	$P_D @ T_A = 25^\circ C$	P_D	1	W
Operating junction and storage temperature range		T_J, T_{STG}	-55 to +150	$^\circ C$
Thermal resistance junction-ambient (Note 1)		$R_{\theta JA}$	125	$^\circ C/W$
Thermal resistance junction-case (Note 1)		$R_{\theta JC}$	80	$^\circ C/W$

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source breakdown voltage	BV _{DSS}	V _{GS} = 0V, I _D = -250μA	-100			V
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1.0		-2.5	
Forward transconductance	g _{fs}	V _{DS} = -5V, I _D = -1A		3		S
Gate-source leakage current	I _{GSS}	V _{GS} = ±20V			±100	nA
Drain-source leakage current (T _J =25°C)	I _{DSS}	V _{DS} = -80V, V _{GS} = 0V			-1	μA
Drain-source leakage current (T _J =55°C)		V _{DS} = -80V, V _{GS} = 0V			-5	
Static drain-source on-resistance (Note 2)	R _{DS(on)}	V _{GS} = -10V, I _D = -1A			650	mΩ
		V _{GS} = -4.5V, I _D = -0.5A			700	
Total gate charge (Note 2)	Q _g	I _D = -1A, V _{DS} = -50V, V _{GS} = -10V		9.3		nC
Gate-source charge	Q _{gs}			1.75		
Gate-drain ("miller") charge	Q _{gd}			1.25		
Turn-on delay time (Note 2)	t _{d(on)}	V _{DD} = -50V, V _{GS} = -10V I _D = -0.5A, R _G = 3.3Ω, R _L = 30Ω		2		nS
Rise time	t _r			18.4		
Turn-off delay time	t _{d(off)}			19.6		
Fall time	t _f			19.6		
Input capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = -15V, f = 1MHz		513		pF
Output capacitance	C _{oss}			29		
Reverse transfer capacitance	C _{rss}			17		
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			-1.2	A
Pulsed source current (Note 2, 4)	I _{SM}				-5	A
Reverse recovery time	t _{rr}	I _F = -1A , T _J =25°C		27		nS
Reverse recovery charge	Q _{rr}	dI/dt = 100A/μs		36		nC

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

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

3. The power dissipation is limited by 150°C junction temperature.

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

Rating and Characteristic Curves (CMS01P10T-HF)

Fig.1 - Typical Output Characteristics

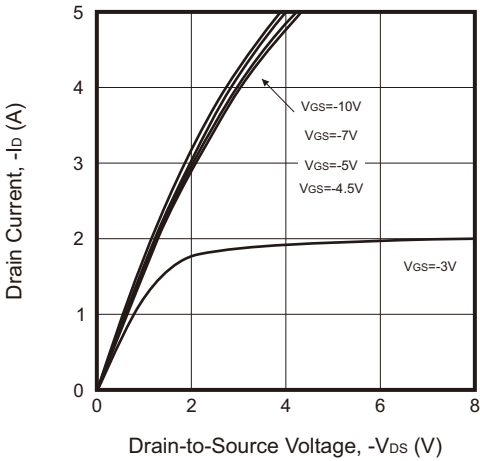


Fig.2 - On-Resistance vs. G-S Voltage

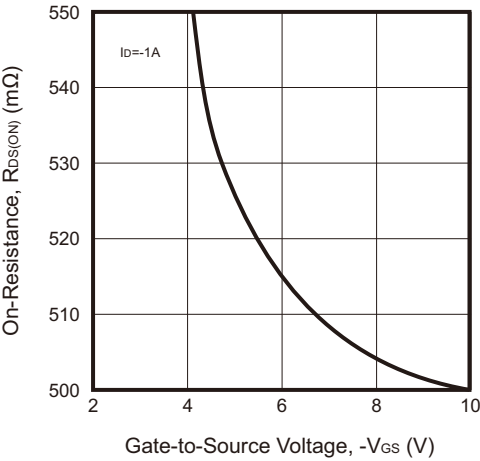


Fig.3 - Normalized $V_{GS(th)}$ vs. T_J

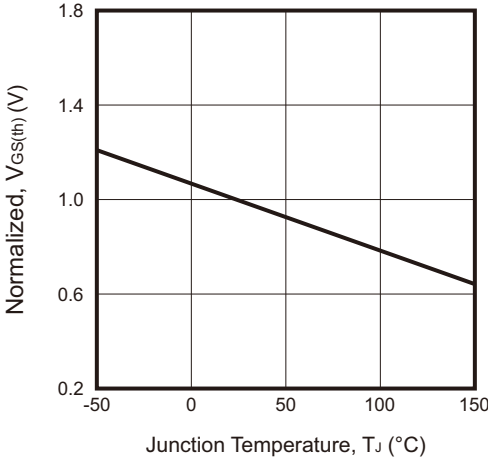


Fig.4 - Normalized $R_{DS(ON)}$ vs. T_J

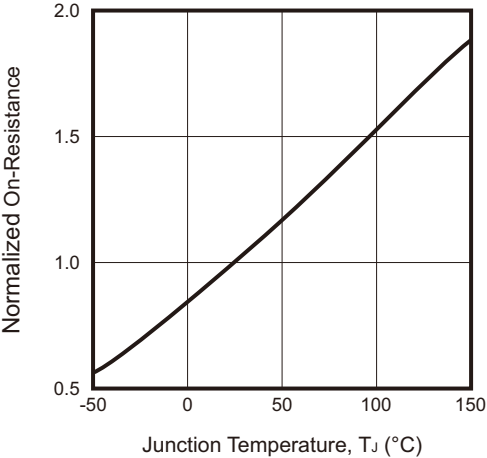


Fig.5 - Safe Operating Area

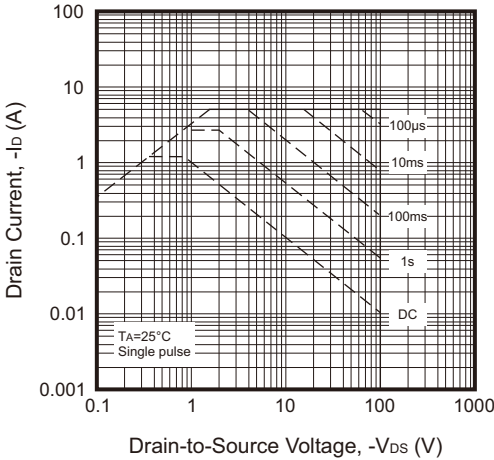
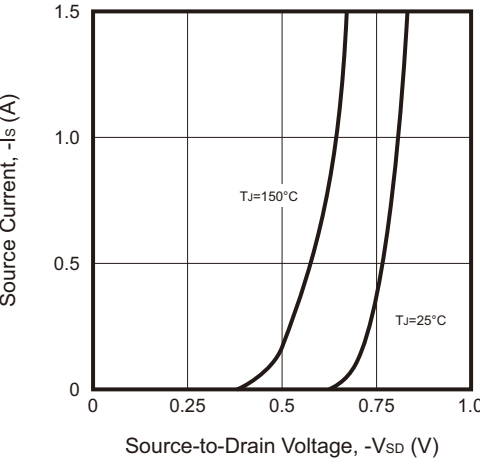


Fig.6 - Forward Characteristics of Reverse



Rating and Characteristic Curves (CMS01P10T-HF)

Fig.7 - Gate Charge Characteristics

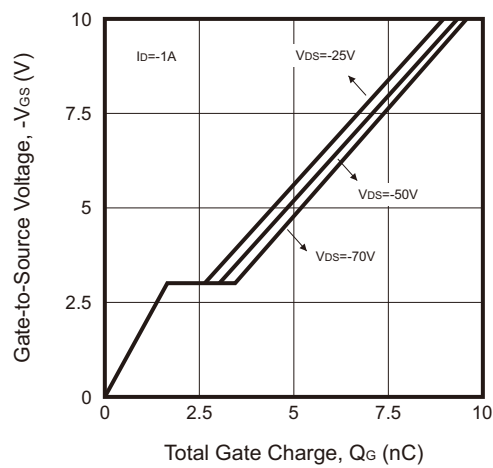
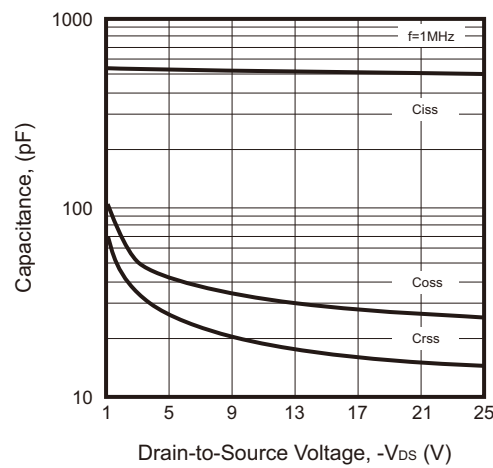
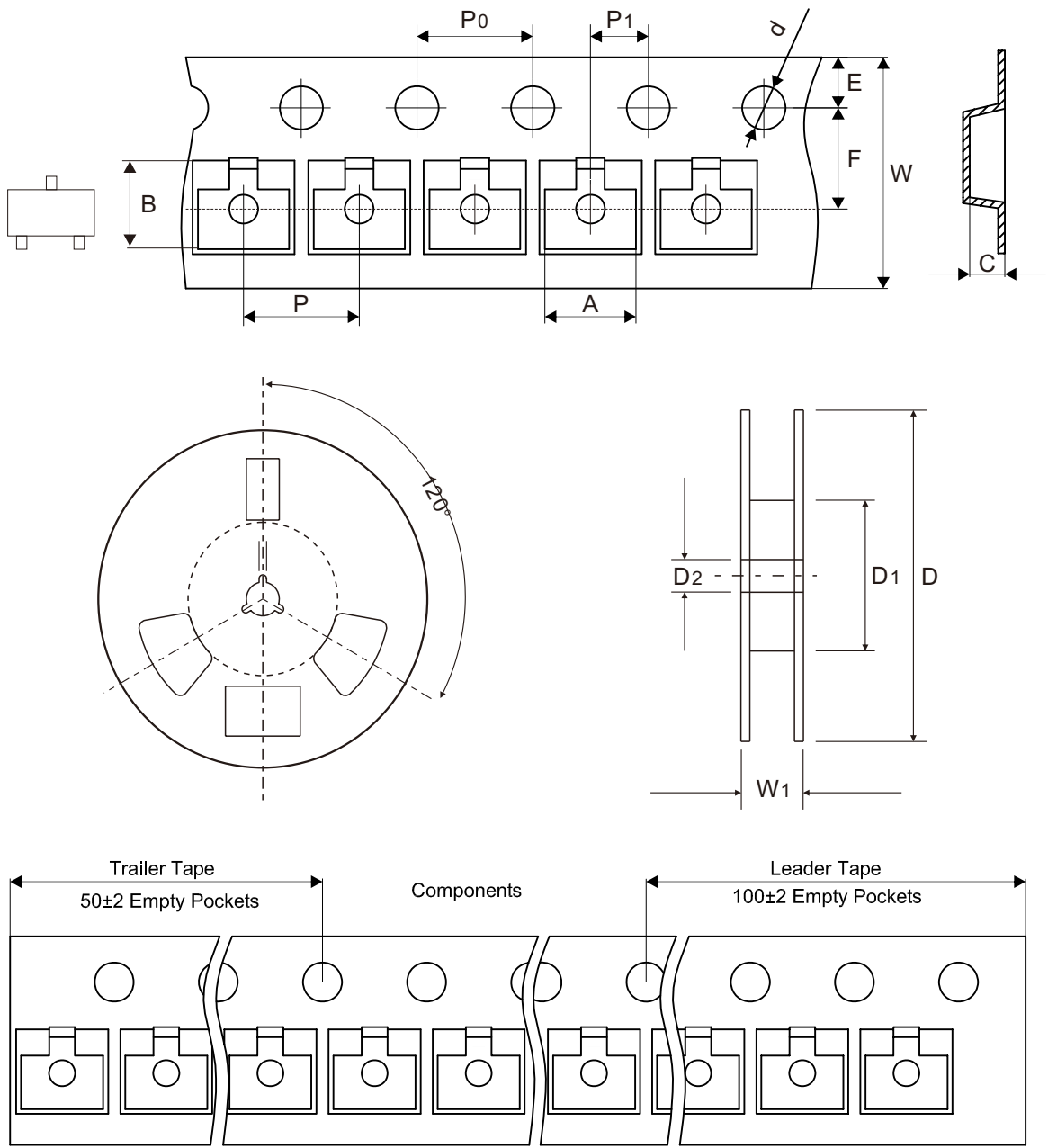


Fig.8 - Capacitance Characteristics



Reel Taping Specification

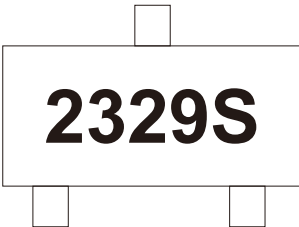


SOT-23	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.10 ± 0.10	3.20 ± 0.10	1.37 ± 0.10	1.50 + 0.10 - 0.00	178.00 ± 0.50	54.50 + 2.50 - 0.00	13.00 + 0.35 - 0.15
	(inch)	0.122 ± 0.004	0.126 ± 0.004	0.054 ± 0.004	0.059 + 0.004 - 0.000	7.008 ± 0.020	2.146 + 0.098 - 0.000	0.512 + 0.014 - 0.006

SOT-23	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	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	0.315 + 0.012 - 0.004	0.472 + 0.059 - 0.020

Marking Code

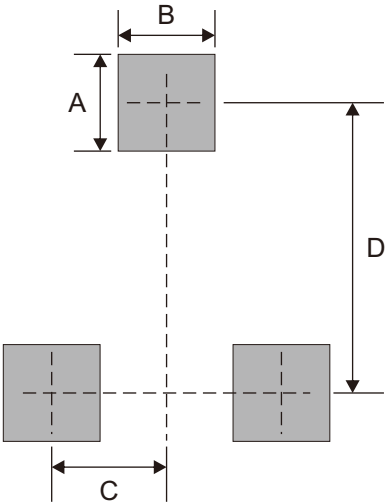
Part Number	Marking Code
CMS01P10T-HF	2329S



Suggested PAD Layout

SIZE	SOT-23	
	(mm)	(inch)
A	0.80	0.031
B	0.80	0.031
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)
SOT-23	3,000	7

Mouser Electronics

Authorized Distributor

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