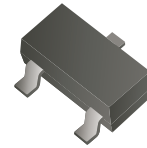


CMSP3401T-P2-HF

P-Channel

RoHS Device

Halogen Free



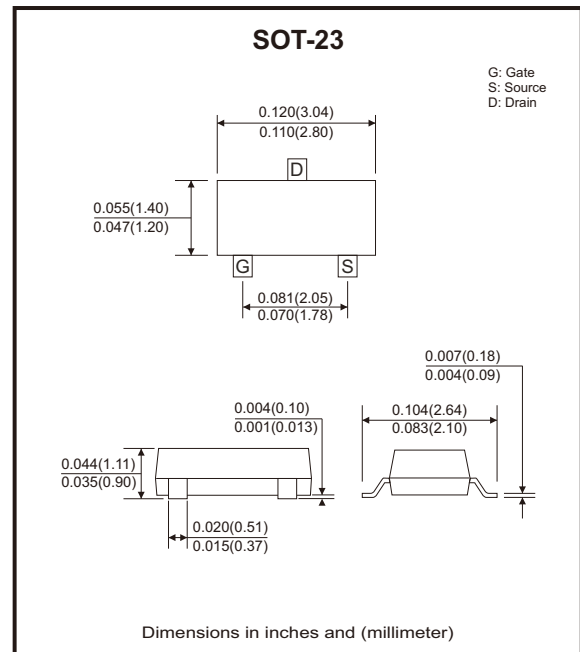
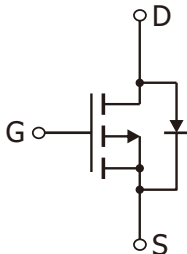
Features

- High power and current handling capability.
- Surface mount package.

Mechanical data

- Case: SOT-23, molded plastic.
- Terminals: Solderable per MIL-STD-750, method 2026.
- Mounting position: Any.

Circuit Diagram



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

Parameter		Symbol	Value	Unit
Drain-source voltage		V_{DS}	-30	V
Gate-source voltage		V_{GS}	± 12	V
Continuous drain current	$T_C = 25^\circ\text{C}$	I_D	-4.2	A
	$T_C = 100^\circ\text{C}$	I_D	-2.7	A
Pulsed drain current (Note 1)		I_{DM}	-17	A
Continuous drain to source diode forward current		I_S	-4.2	A
Pulsed drain to source diode forward current		I_{SM}	-17	A
Power dissipation		P_D	1.2	W
Thermal resistance junction to ambient		$R_{\theta JA}$	104	$^\circ\text{C/W}$
Operating junction and storage temperature range		T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source breakdown voltage	BV_{DSS}	$V_{GS} = 0V, I_D = -250\mu A$	-30			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -24V, V_{GS} = 0V$			-1	μA
Gate-body leakage current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 10V$			± 100	nA
Gate threshold voltage (Note 2)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.7	-1	-1.3	V
Drain-source on-resistance (Note 2)	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -4.2A$		48	70	m Ω
	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -4A$		56	80	m Ω
	$R_{DS(on)}$	$V_{GS} = -2.5V, I_D = -1A$		72	120	m Ω
Forward transconductance	g_{fs}	$V_{DS} = -5V, I_D = -4.2A$		10		S
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{DS} = -15V, V_{GS} = 0V, f = 1MHz$		880		pF
Output capacitance	C_{oss}			105		
Reverse transfer capacitance	C_{rss}			65		
Total gate charge	Q_g	$V_{DS} = -15V, I_D = -4.2A, V_{GS} = -4.5V$		8.5		nC
Gate to source charge	Q_{gs}			1.8		
Gate to drain ("miller") charge	Q_{gd}			2.7		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = -15V, I_D = -4.2A, V_{GS} = -10V$ $R_{GEN} = 6\Omega$		7		ns
Turn-on rise time	t_r			3		
Turn-off delay time	$t_{d(off)}$			30		
Turn-off fall time	t_f			12		
Diode forward voltage	V_{SD}	$V_{GS} = 0V, I_S = -4.2A$			-1.2	V
Reverse recovery time	t_{rr}	$V_{GS} = 0V, I_S = -4.2A, dI/dt = 100A/\mu s$		11		ns
Reverse recovery charge	Q_{rr}			3.5		nC

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

2. Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

Typical Rating and Characteristic Curves (CMSP3401T-P2-HF)

Fig.1 - On-Region Characteristics

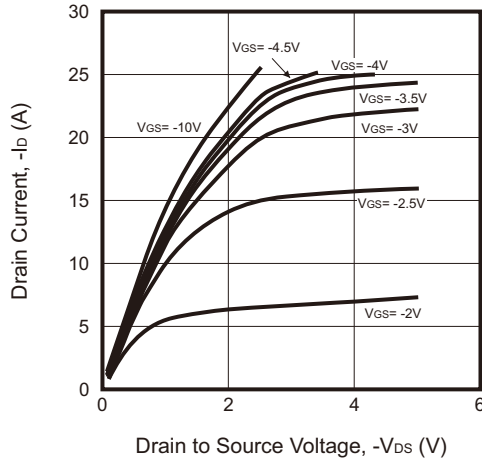


Fig.2 - Transfer Characteristics

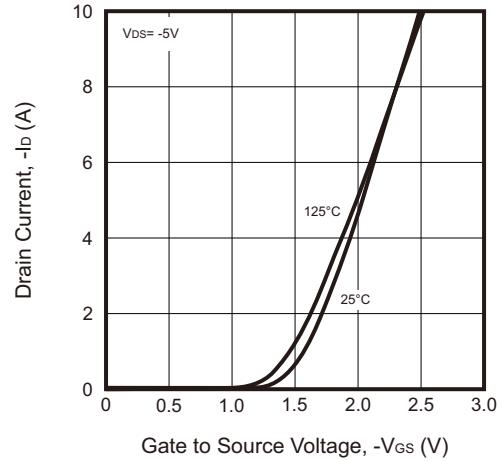


Fig.3 - On-Resistance vs. Drain Current

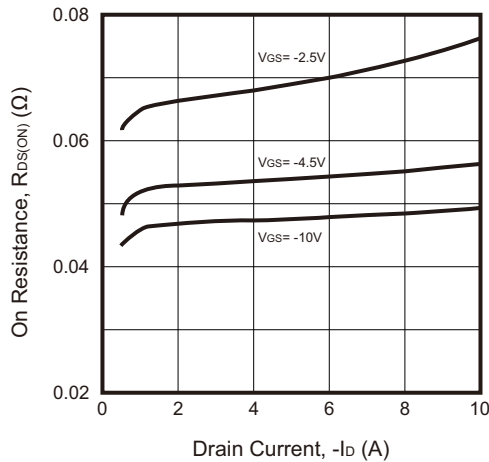


Fig.4 - Temperature vs. Gate Threshold Voltage

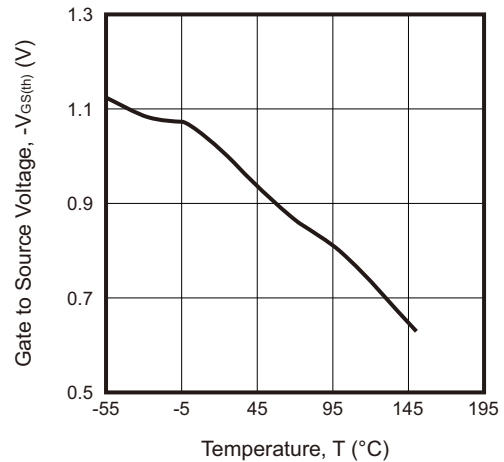


Fig.5 - On-Resistance vs. Gate to Source Voltage

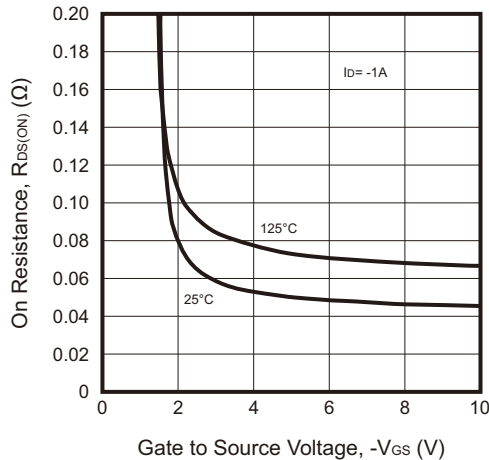
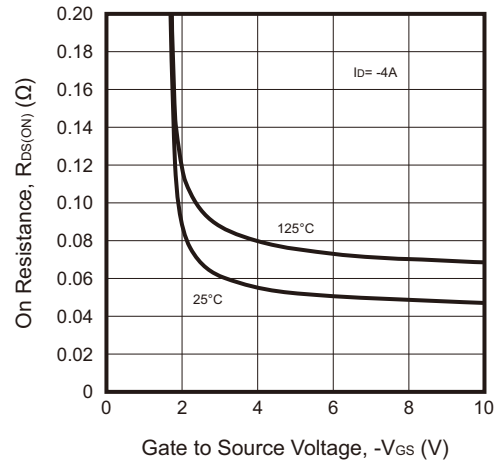


Fig.6 - On-Resistance vs. Gate to Source Voltage



Typical Rating and Characteristic Curves (CMSP3401T-P2-HF)

Fig.7 - Safe Operating Area

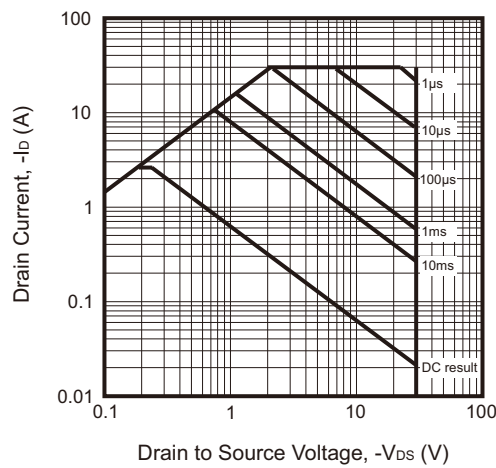
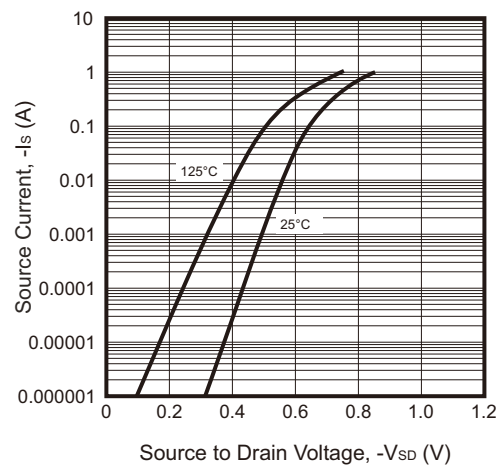
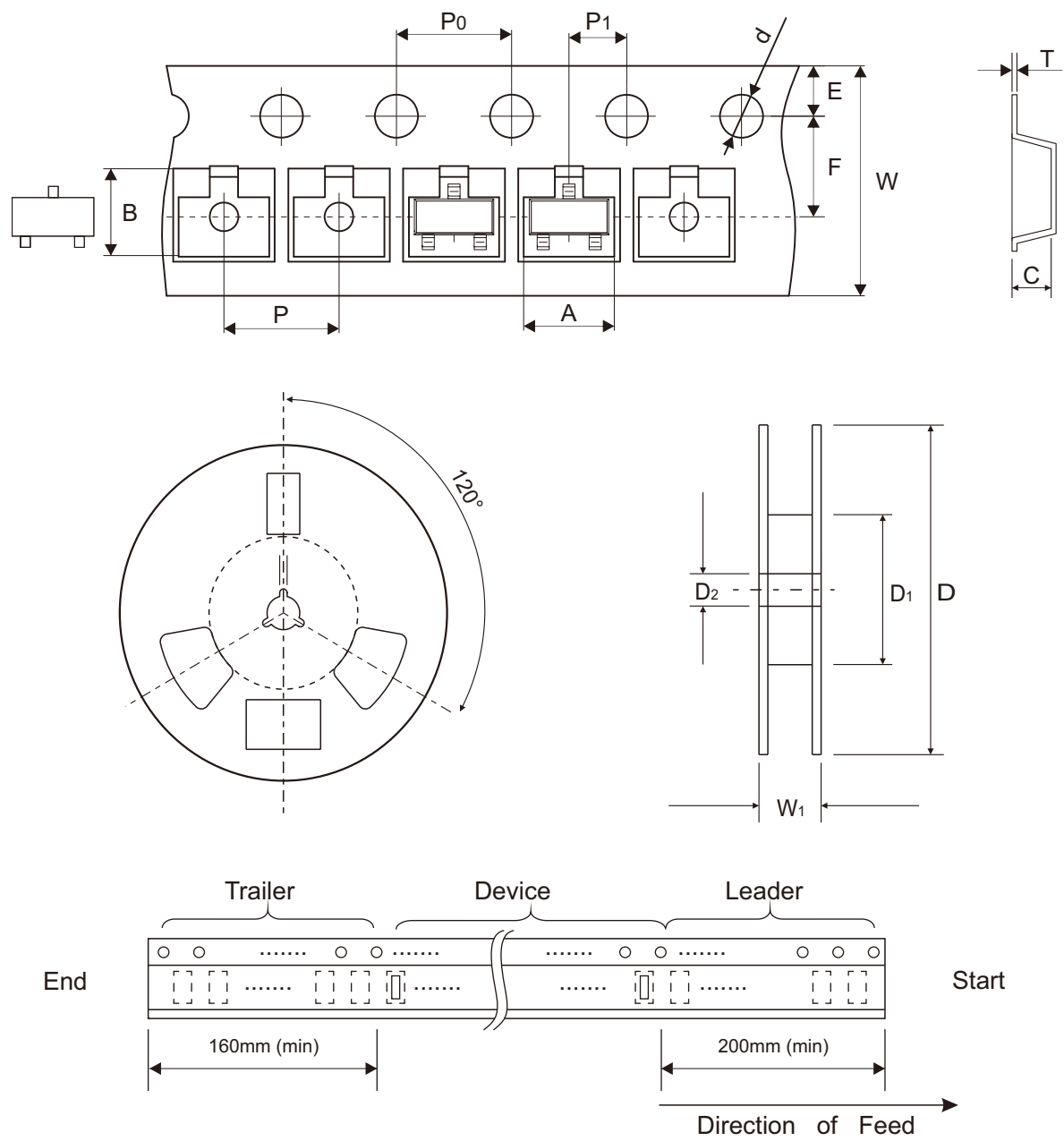


Fig.8 - Body Diode Characteristics



Reel Taping Specification

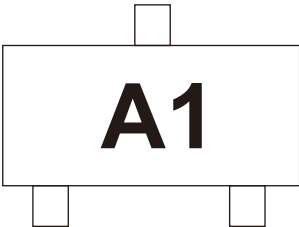


SOT-23	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	3.15 ± 0.10	2.77 ± 0.10	1.22 + 0.08 - 0.10	1.50 + 0.10 - 0.00	178.00 ± 2.00	50.00 ± 0.50	13.00 ± 0.25
	(inch)	0.124 ± 0.004	0.109 ± 0.004	0.048 + 0.003 - 0.004	0.059 + 0.004 - 0.000	7.008 ± 0.079	1.969 ± 0.020	0.512 ± 0.010

SOT-23	SYMBOL	E	F	P	P0	P1	T	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	0.20 ± 0.02	8.00 + 0.30 - 0.10	9.50 ± 0.50
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.008 ± 0.001	0.315 + 0.012 - 0.004	0.374 ± 0.020

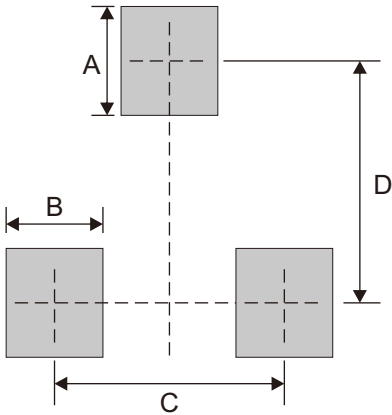
Marking Code

Part Number	Marking Code
CMSP3401T-P2-HF	A1



Suggested P.C.B. PAD Layout

SIZE	SOT-23	
	(mm)	(inch)
A	0.90	0.035
B	0.80	0.031
C	1.90	0.075
D	2.00	0.079



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-23	3,000	7