

Features

- High Dense Cell Design for Extremely Low $R_{DS(ON)}$
- Voltage Controlled Small Signal Switch
- Surface Mount Package
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

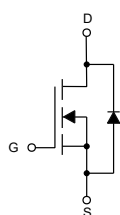
Maximum Ratings

- Operating Junction Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Storage Temperature: -55°C to $+150^{\circ}\text{C}$
- Thermal Resistance: 357°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	0.17	A
Drain Current-Pulsed	I_{DM}	0.68	A
Power Dissipation	P_D	0.35	W

Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Internal Structure

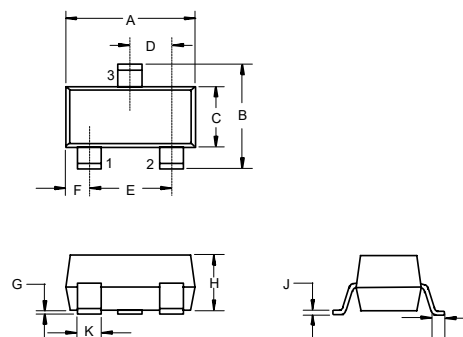


1. GATE
2. SOURCE
3. DRAIN

Marking: B123

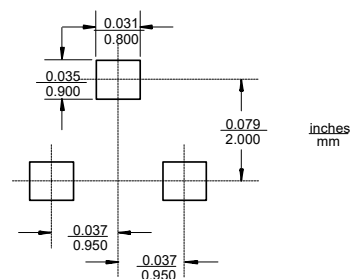
N-Channel MOSFET

SOT-23



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.110	0.120	2.80	3.04	
B	0.083	0.104	2.10	2.64	
C	0.047	0.055	1.20	1.40	
D	0.034	0.041	0.85	1.05	
E	0.067	0.083	1.70	2.10	
F	0.018	0.024	0.45	0.60	
G	0.0004	0.006	0.01	0.15	
H	0.035	0.043	0.90	1.10	
J	0.003	0.007	0.08	0.18	
K	0.012	0.020	0.30	0.51	
L	0.007	0.020	0.20	0.50	

Suggested Solder Pad Layout



ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	100			V
Gate-Threshold Voltage ^(Note2)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0		2.8	V
Gate-Body Leakage Current	I _{GSS}	V _{GS} =± 20V, V _{DS} =0V			±50	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V			1	μA
		V _{DS} =20V, V _{GS} =0V			10	nA
Drain-Source On-Resistance ^(Note2)	R _{DS(on)}	V _{GS} =10V, I _D =0.17A			6	Ω
		V _{GS} =4.5V, I _D =0.17A			10	
Forward Transconductance ^(Note2)	g _{FS}	V _{DS} =10V, I _D =0.17A	80			mS
Diode Forward Voltage ^(Note2)	V _{SD}	V _{GS} =0V, I _S =0.34A			1.3	V
Dynamic Characteristics ^(Note4)						
Input Capacitance	C _{iss}	V _{DS} =25V,V _{GS} =0V, f=1MHz		29	60	pF
Output Capacitance	C _{oss}			10	15	
Reverse Transfer Capacitance	C _{rss}			2	6	
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} =10V,V _{GS} =10V,I _D =0.22A		1.4	2	nC
Gate-Source Charge	Q _{gs}			0.15	0.25	
Gate-Drain Charge	Q _{gd}			0.2	0.4	
Turn-On Delay Time ^(Note3,4)	t _{d(on)}	V _{DD} =30V,V _{GS} =10V,R _G =50Ω, I _D =0.28A			8	ns
Turn-On Rise Time ^(Note3,4)	t _r				8	
Turn-Off Delay Time ^(Note3,4)	t _{d(off)}				13	
Turn-Off Fall Time ^(Note3,4)	t _f				16	

Note:

- Pulse Test : Pulse Width=300 μ s, Duty Cycles $\leq$ 2%.
- Switching Characteristics are Independent of Operating Junction Temperature.
- Granted by Design, Not Subject to Producing.

Curve Characteristics

Fig. 1 - Output Characteristics

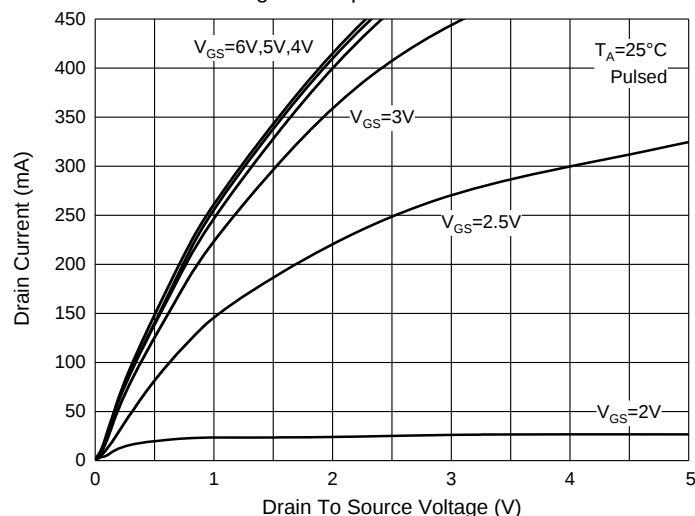


Fig. 2 - Transfer Characteristics

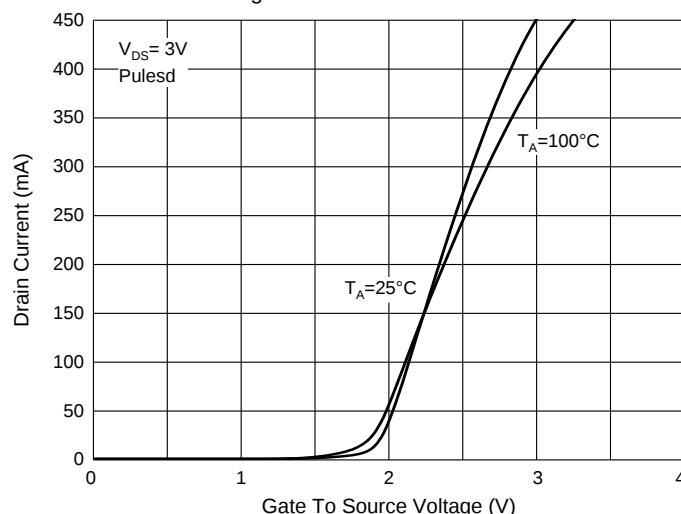


Fig. 3 - $R_{DS(ON)} - I_D$

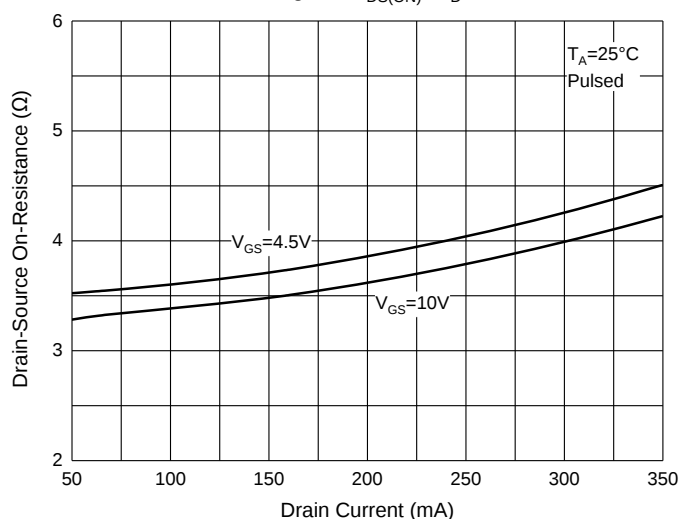


Fig. 4 - $R_{DS(ON)} - V_{GS}$

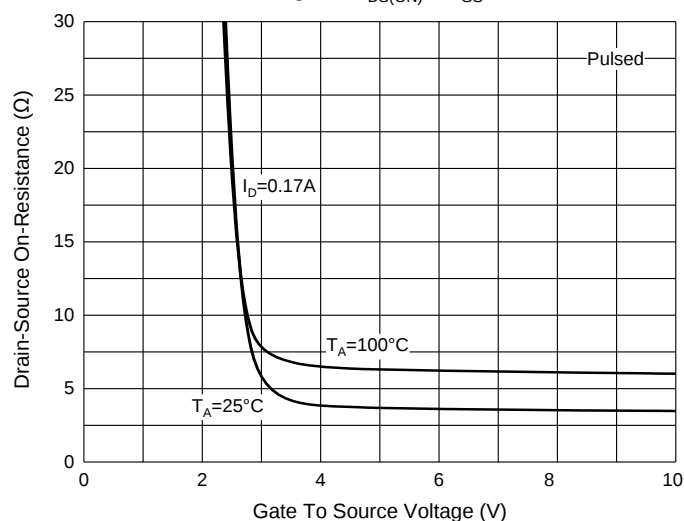


Fig. 5 - $I_S - V_{SD}$

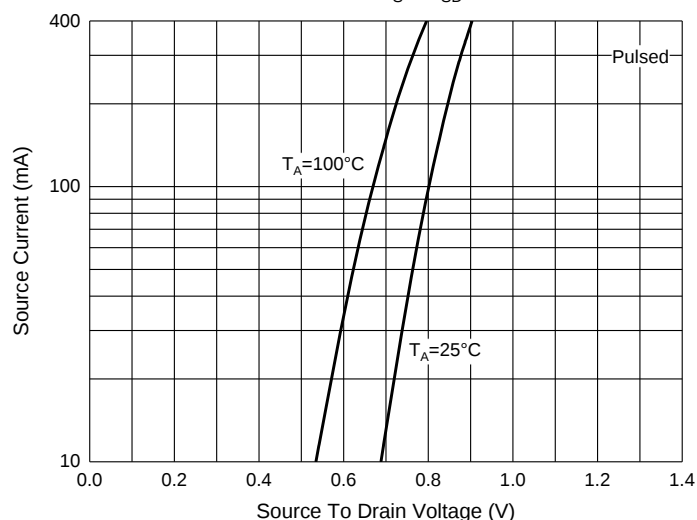
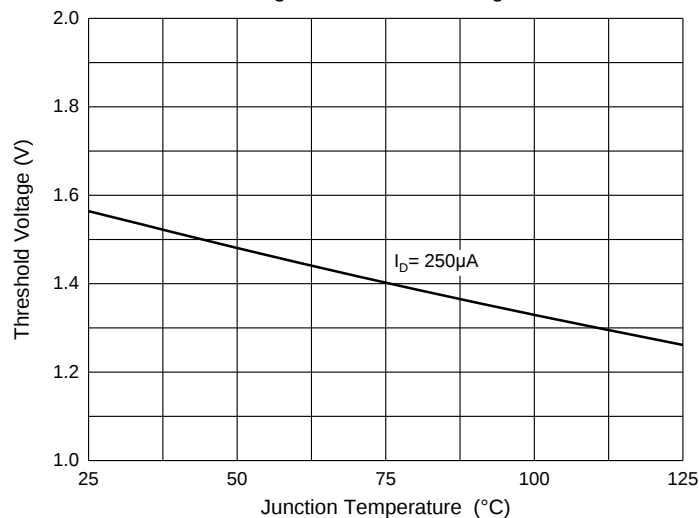


Fig. 6 - Threshold Voltage



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:3Kpcs/Reel

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