Features

- P-Channel Switch with Low $R_{DS(on)}$
- 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)

P-Channel MOSFET

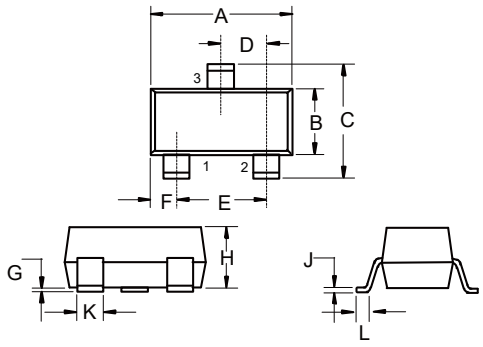
Maximum Ratings

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Maximum Thermal Resistance: 833°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±12	V
Drain Current-Continuous	I_D	-0.6	A
Pulsed Drain Current(Note 2)	I_{DM}	-3	A
Power Dissipation(Note 3)	P_D	0.15	W

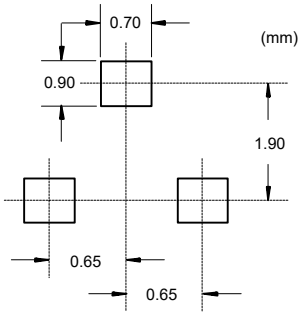
Note: 1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

SOT-323

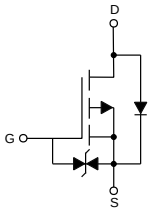


DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.071	0.087	1.80	2.20	
B	0.045	0.053	1.15	1.35	
C	0.083	0.096	2.10	2.45	
D	0.026		0.65		TYP.
E	0.047	0.055	1.20	1.40	
F	0.012	0.016	0.30	0.40	
G	0.000	0.004	0.00	0.10	
H	0.035	0.044	0.90	1.10	
J	0.002	0.010	0.05	0.25	
K	0.006	0.016	0.15	0.40	
L	0.010	0.018	0.26	0.46	

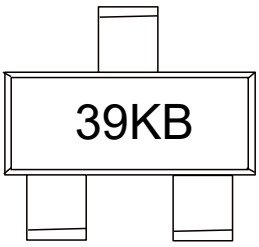
Suggested Solder Pad Layout



Internal Structure and Marking Code



1. GATE
2. SOURCE
3. DRAIN



ELECTRICAL CHARACTERISTICS (Ta=25℃ 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	-20			V
Gate-Threshold Voltage(Note 4)	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-0.35	-0.71	-1.1	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =-20V, V_{GS} =0V			-1.0	μA
Gate-body Leakage Current	I_{GSS}	V_{GS} =± 10V, V_{DS} =0V			±10	μA
Drain-Source On-Resistance(Note 4)	$R_{DS(on)}$	V_{GS}=-4.5V, I_D=-500mA		0.62	0.85	Ω
		V_{GS}=-2.5V, I_D=-300mA		0.88	1.2	
		V_{GS}=-1.8V, I_D=-200mA		1.41	2.0	
Forward transconductance	g_{FS}	V_{DS}=-10V, I_D=-500mA	0.8			S
Diode Forward Voltage(Note 4)	V_{SD}	V_{GS}=0V, I_S=-500mA			-1.2	V
Dynamic Characteristics(Note 5)						
Input Capacitance	C_{iss}	V_{DS}=-16V,V_{GS}=0V, f=1MHz		40		pF
Output Capacitance	C_{oss}			16		
Reverse Transfer Capacitance	C_{rss}			11		
Total Gate Charge	Q_g	V_{GS}=-4.5V,V_{DS}=-10V,I_D=-1A		860		pC
Gate-Source Charge	Q_{gs}			320		
Gate-Drain Charge	Q_{gd}			200		
Switching Characteristics(Note 5)						
Turn-on Delay Time	$t_{d(on)}$	V_{DS}=-10V,V_{GS}=-4.5V,I_D=-500mA, R_G=10Ω		3.8		ns
Turn-off Delay Time	$t_{d(off)}$			9.4		
Rise Time	t_r			19		
Fall Time	t_f			23		

Notes :

2. Repetitive Rating : Pulse Width Limited by Junction Temperature.
3. This Test is Performed With No Heat Sink at Ta=25°C.
4. Pulse Test : Pulse Width≤300μs, Duty Cycle≤0.5%.
5. Guaranteed by Design, Not Subject to Production Testing.

Curve Characteristics

Fig. 1 - Typical Output Characteristics

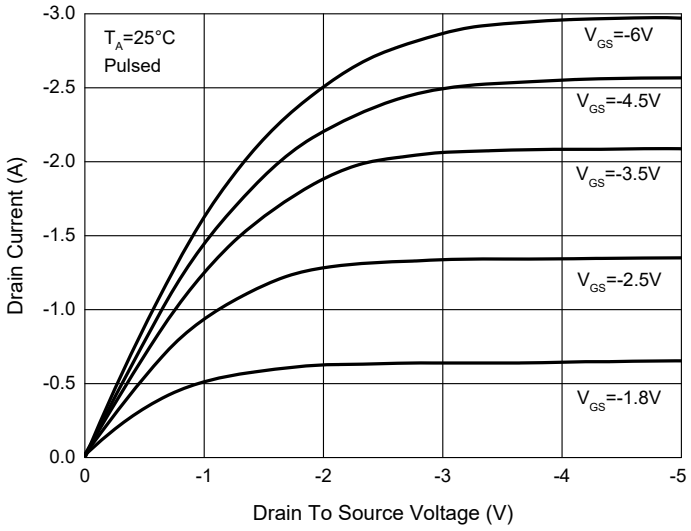


Fig. 2 - Transfer Characteristics

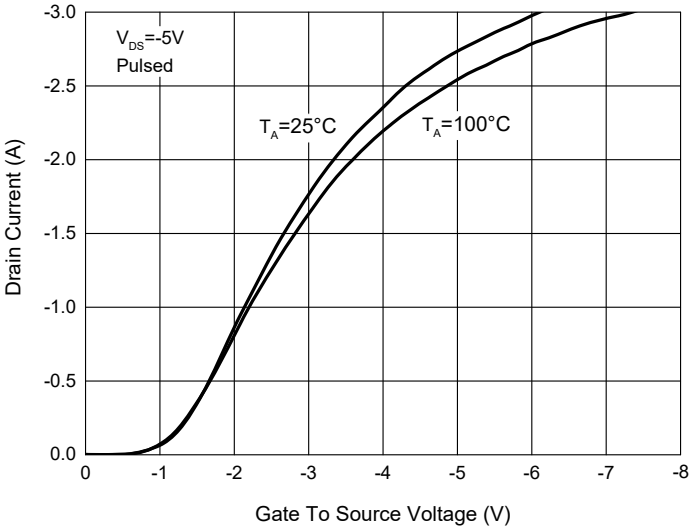


Fig. 3 - $R_{DS(ON)}$—I_D

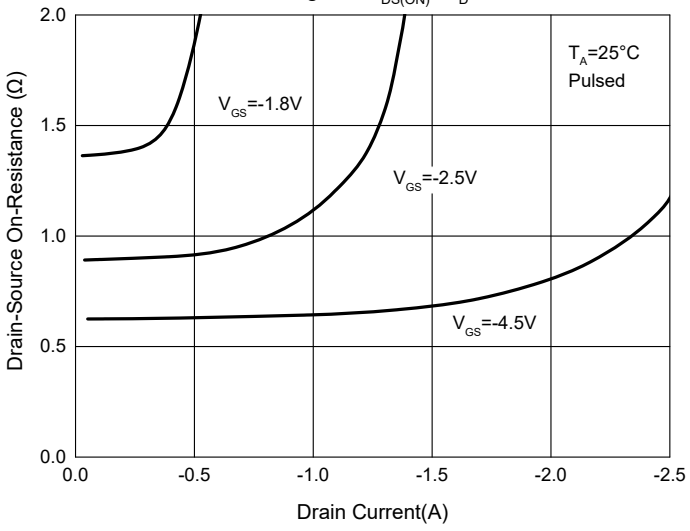


Fig. 4 - $R_{DS(ON)}$—V_{GS}

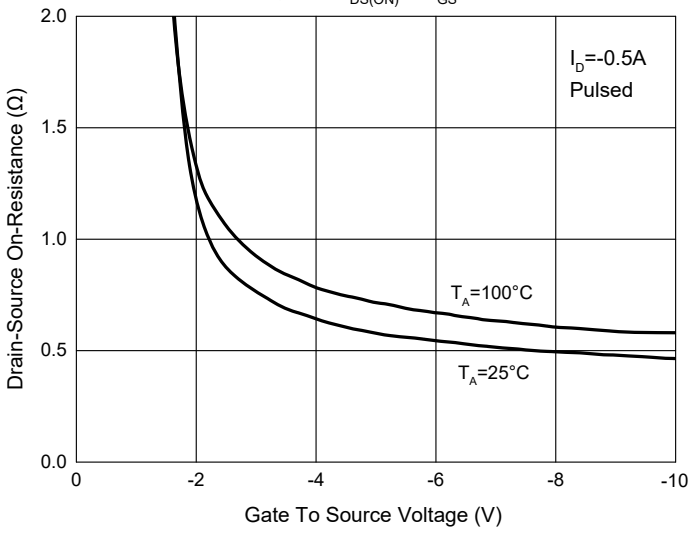


Fig. 5 - I_S—V_{SD}

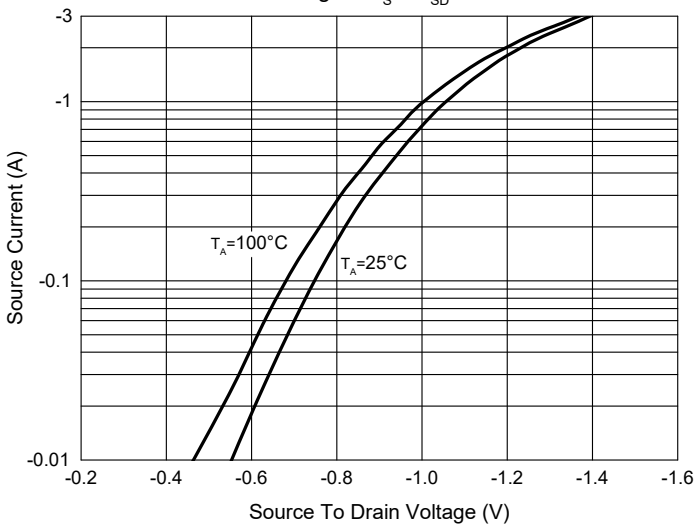
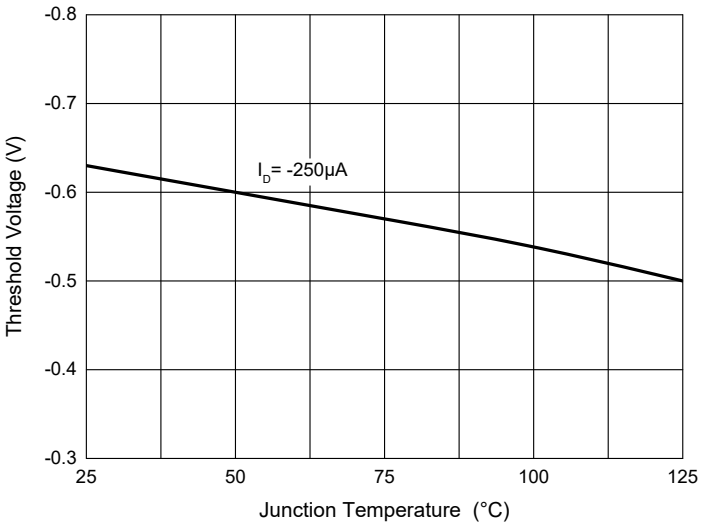


Fig. 6 - Threshold Voltage



Curve Characteristics

Fig. 7 - Capacitance Characteristics

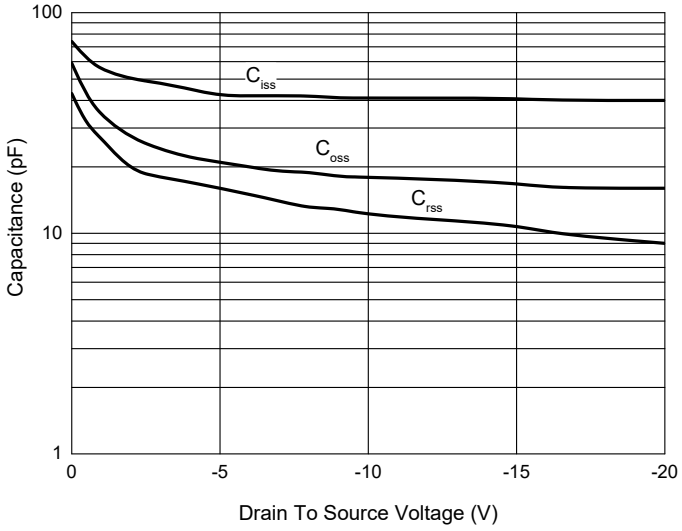
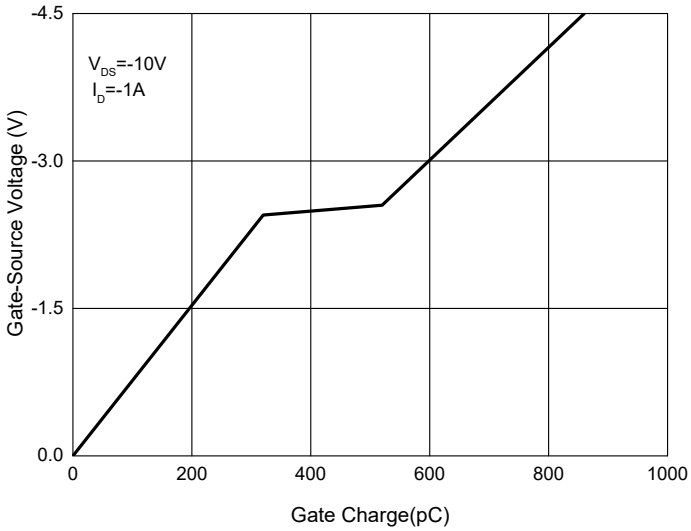


Fig. 8 - Gate Charge



Ordering Information

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