

Features

- Low Threshold
- ESD Protected Gate
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 833°C/W Junction to Ambient
- Thermal Resistance: 455°C/W Junction to Case

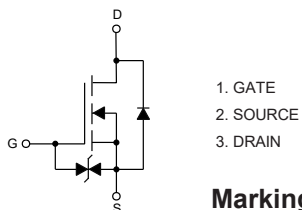
Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	V_{DS}	20	V	
Gate-Source Voltage	V_{GS}	± 12	V	
Continuous Drain Current	I_D	0.5	A	
Pulsed Drain Current (Note 1)	I_{DM}	1	A	
Total Power Dissipation	$T_A=25^\circ\text{C}$ (Note 2)	P_D	150	mW
	$T_C=25^\circ\text{C}$ (Note 3)		275	mW

Note: 1. Repetitive Rating; Pulse Width Limited by Maximum Junction Temperature.

2. This Test is Performed with no Heat Sink at $T_A=25^\circ\text{C}$.

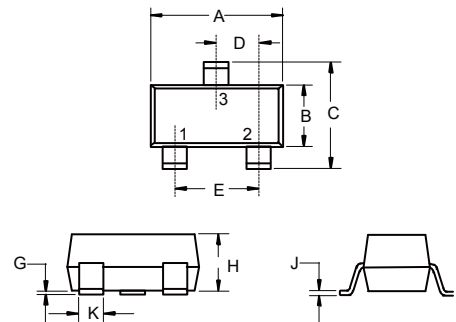
3. This Test is Performed with Infinite Heat Sink at $T_C=25^\circ\text{C}$.

Internal Structure



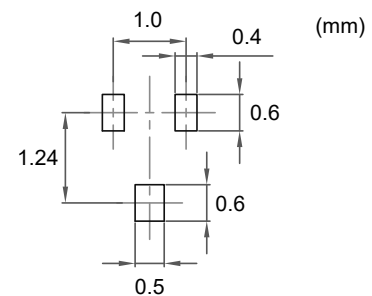
N-CHANNEL MOSFET

SOT-523



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.059	0.067	1.50	1.70	
B	0.030	0.033	0.75	0.85	
C	0.057	0.069	1.45	1.75	
D	0.020		0.50		TYP.
E	0.035	0.043	0.90	1.10	
G	0.000	0.004	0.00	0.10	
H	0.024	0.031	0.60	0.80	
J	0.004	0.008	0.10	0.20	
K	0.006	0.014	0.15	0.35	

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	20			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 4.5V$			± 1	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=16V, V_{GS}=0V$			100	nA
Gate-Threshold Voltage ^(Note 4)	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.45	0.8	1.2	V
Drain-Source On-Resistance ^(Note 4)	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=600mA$		250	700	m Ω
		$V_{GS}=2.5V, I_D=500mA$		330	850	
Forward Transconductance	g_{FS}	$V_{DS}=10V, I_D=400mA$		1		S
Dynamic Characteristics^(Note 5)						
Input Capacitance	C_{iss}	$V_{DS}=16V, V_{GS}=0V, f=1MHz$		100		pF
Output Capacitance	C_{oss}			16		
Reverse Transfer Capacitance	C_{rss}			12		
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=4.5V, I_D=250mA$		750		nC
Gate-Source Charge	Q_{gs}			75		
Gate-Drain Charge	Q_{gd}			225		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=10V,$ $R_L=47\Omega, I_D=200mA,$ $V_{GS}=4.5V, R_G=10\Omega$		5		ns
Turn-On Rise Time	t_r			5		
Turn-Off Delay Time	$t_{d(off)}$			25		
Turn-Off Fall Time	t_f			11		
Drain-Source Body Diode Characteristics						
Body Diode Voltage ^(Note 4)	V_{SD}	$I_S=0.15A, V_{GS}=0V$			1.2	V

 Note 4. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$.

5. Guaranteed by Design, Not Subject to Production Testing.

Curve Characteristics

Fig. 1 - Output Characteristics

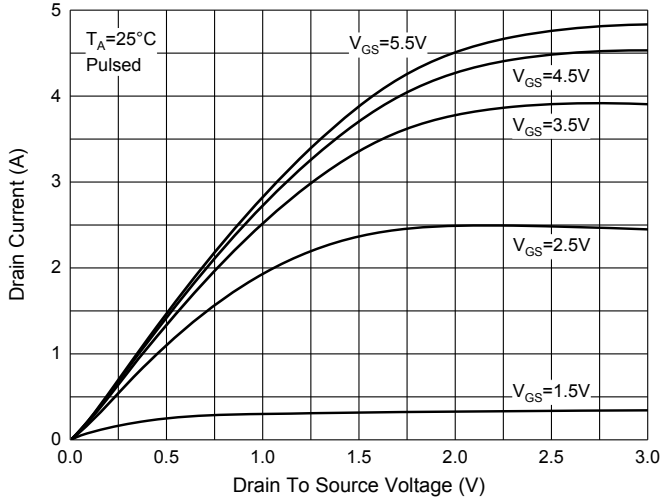


Fig. 2 - Transfer Characteristics

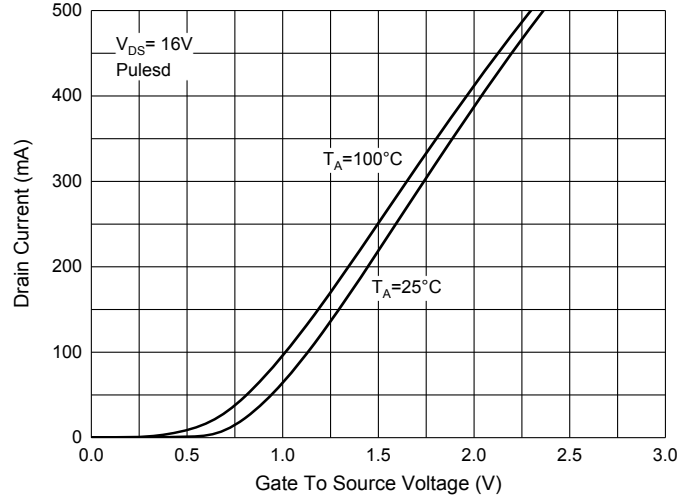


Fig. 3 - $R_{DS(ON)} - I_D$

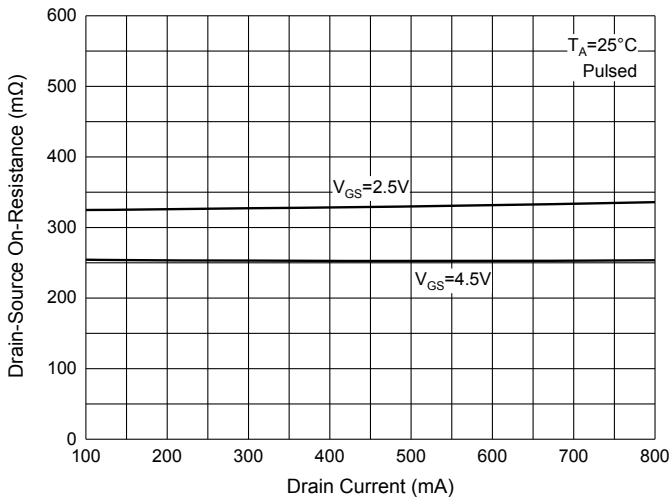


Fig. 4 - $R_{DS(ON)} - V_{GS}$

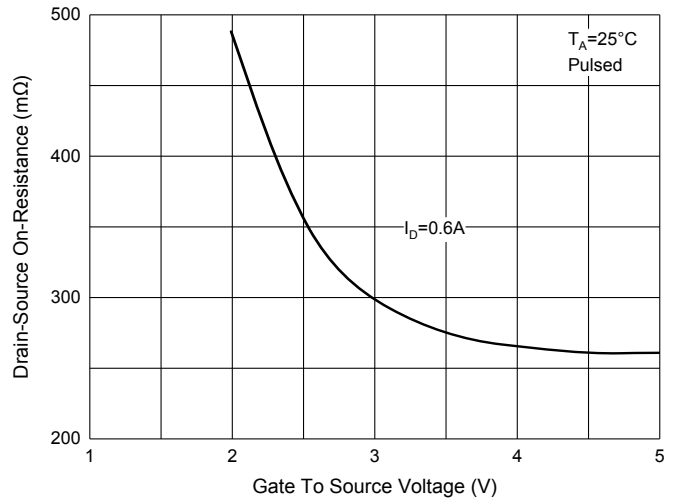


Fig. 5 - $I_S - V_{SD}$

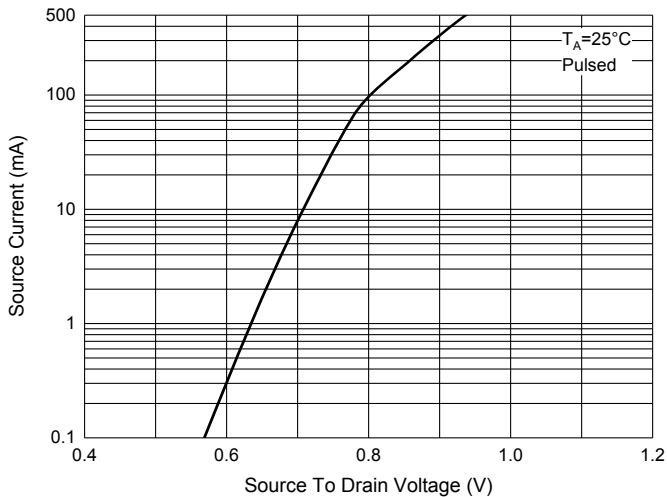
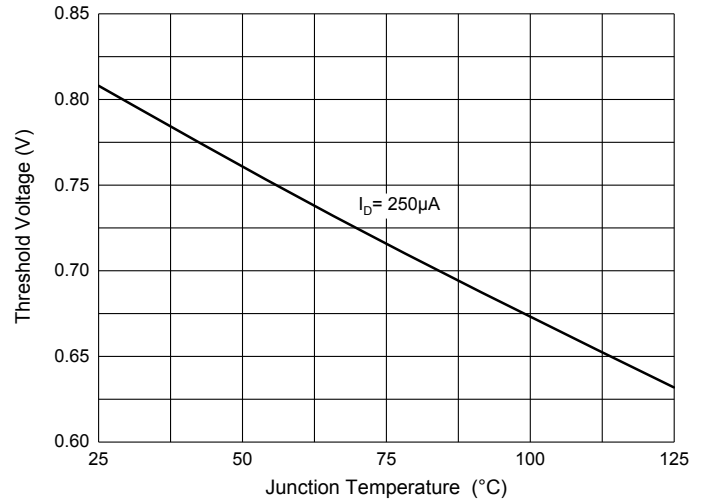


Fig. 6 - Threshold Voltage



Ordering Information

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

Note : Adding "-HF" Suffix for Halogen Free, eg. Part Number-TP-HF

*****IMPORTANT NOTICE*****

Micro Commercial Components Corp. reserves the right to make changes without further notice to any product herein to make corrections, modifications , enhancements , improvements , or other changes . **Micro Commercial Components Corp .** does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights ,nor the rights of others . The user of products in such applications shall assume all risks of such use and will agree to hold **Micro Commercial Components Corp .** and all the companies whose products are represented on our website, harmless against all damages.

*****LIFE SUPPORT*****

MCC's products are not authorized for use as critical components in life support devices or systems without the express written approval of Micro Commercial Components Corporation.

*****CUSTOMER AWARENESS*****

Counterfeiting of semiconductor parts is a growing problem in the industry. Micro Commercial Components (MCC) is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. MCC strongly encourages customers to purchase MCC parts either directly from MCC or from Authorized MCC Distributors who are listed by country on our web page cited below. Products customers buy either from MCC directly or from Authorized MCC Distributors are genuine parts, have full traceability, meet MCC's quality standards for handling and storage. **MCC will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources.** MCC is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.