Features

- AEC-Q101 Qualification
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free. “Green” Device (Note 1)

N-Channel Enhancement Mode Field Effect Transistor

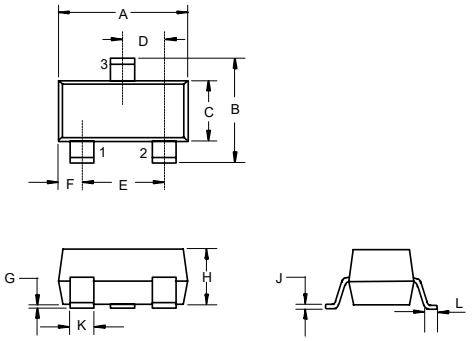
Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 105°C/W Junction to Ambient(Note 2)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Volltage	V_{GS}	±20	V
Drain Current	I_D	3.0	A
Pulsed Drain Current(Note 3)	I_{DM}	10	A
Total Power Dissipation	P_D	1.2	W

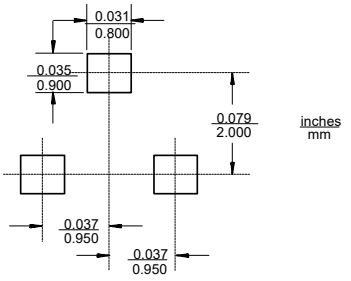
Note: 1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. Device Mounted on FR-4 PCB, 1 inch 2 pad of 2oz copper.
3. Repetitive Rating : Pulse Width Limited by Junction Temperature.

SOT-23

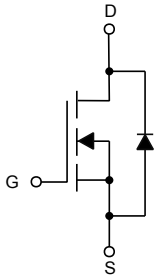


DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.110	0.120	2.80	3.04	
B	0.083	0.104	2.10	2.64	
C	0.047	0.055	1.20	1.40	
D	0.034	0.041	0.85	1.05	
E	0.067	0.083	1.70	2.10	
F	0.018	0.024	0.45	0.60	
G	0.0004	0.006	0.01	0.15	
H	0.035	0.043	0.90	1.10	
J	0.003	0.007	0.08	0.18	
K	0.014	0.020	0.35	0.51	
L	0.007	0.020	0.20	0.50	

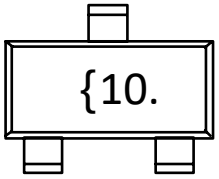
Suggested Solder Pad Layout



Internal Structure and Marking Code



1. GATE
2. SOURCE
3. DRAIN



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=250μA	60			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±20V			±100	nA
		V_{DS}=0V, V_{GS} =±10V			±50	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V			1	μA
Gate-Threshold Voltage(Note4)	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.90		2.0	V
Drain-Source On-Resistance(Note4)	$R_{DS(on)}$	V_{GS}=10V, I_D=3A			100	mΩ
		V_{GS}=4.5V, I_D=2A			120	mΩ
Diode Forward Voltage(Note4)	V_{SD}	V_{GS}=0V, I_S=3A			1.2	V
Dynamic Characteristics(Note5,6)						
Input Capacitance	C_{iss}	V_{DS}=10V,V_{GS}=0V,f=1MHz		409		pF
Output Capacitance	C_{oss}			50		
Reverse Transfer Capacitance	C_{rss}			41		
Total Gate Charge	Q_g	V_{DS}=30V,V_{GS}=10V,I_D=3A		10.27		nC
Gate-Source Charge	Q_{gs}			1.65		
Gate-Drain Charge	Q_{gd}			2.11		
Reverse Recovery Charge	Q_{rr}	I_{SD}=3A, di/dt=100A/us		6.99		
Reverse Recovery Time	T_{rr}			32.6		ns
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V,V_{DS}=30V, R_L=20Ω,R_G=3Ω		3.6		
Turn-On Rise Time	t_r			17.6		
Turn-Off Delay Time	$t_{d(off)}$			13		
Turn-Off Fall Time	t_f			23		

Note 4. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤ 2%.

5. Switching characteristics are independent of operating junction temperature.

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

Curve Characteristics

Fig. 1 - Output Charact eristics

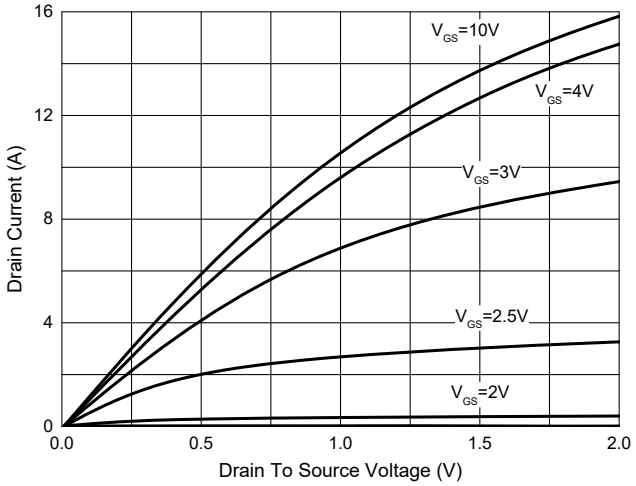


Fig. 2 - Transfer Characteristics

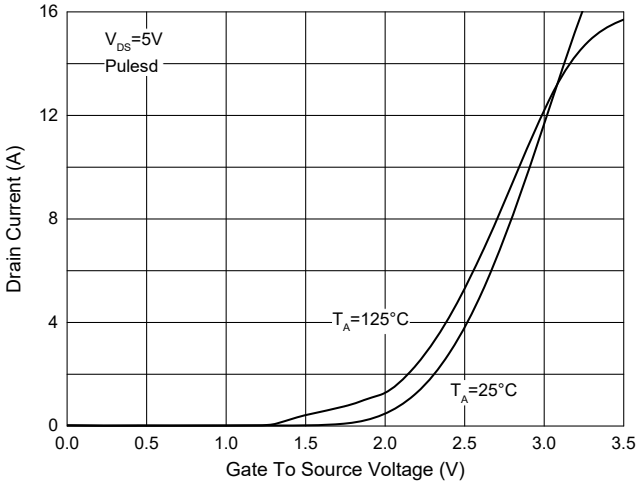


Fig. 3 - $R_{DS(ON)}$—I_D

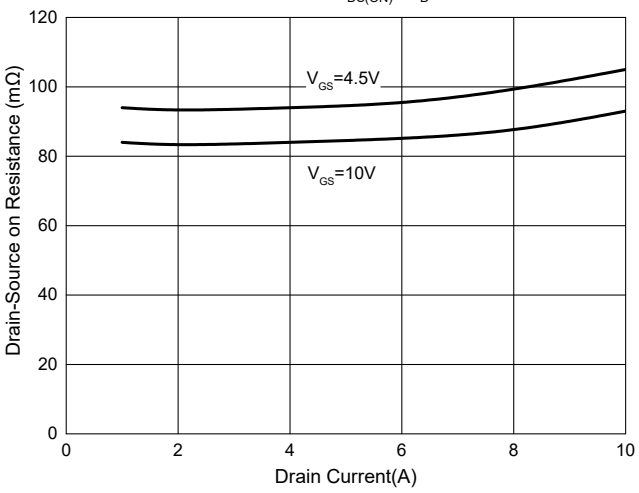


Fig. 4 - Normalized On Resistance Characteristics

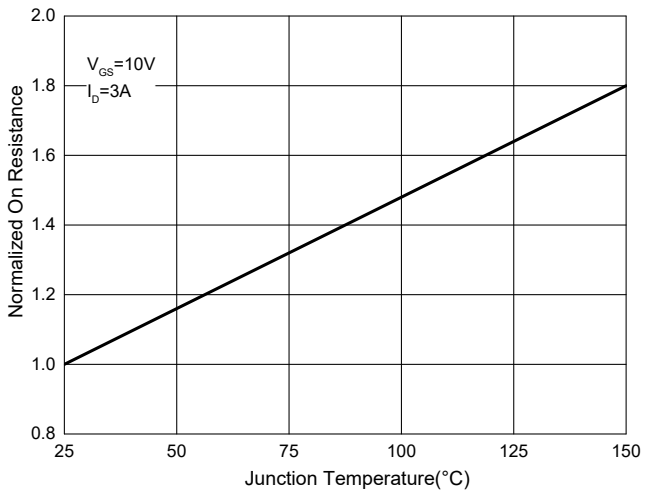


Fig. 5 - Gate Charge

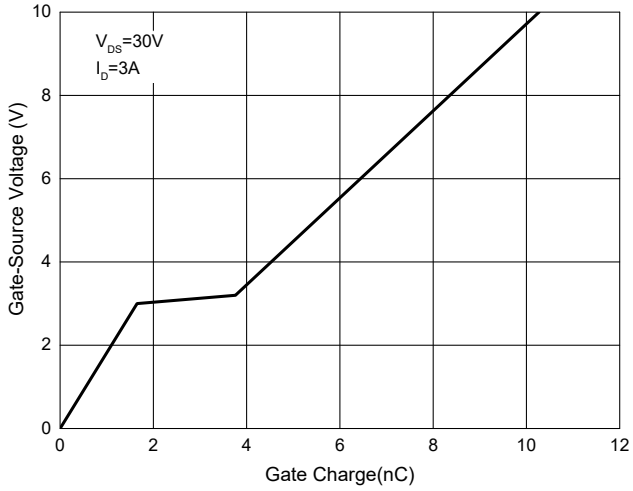
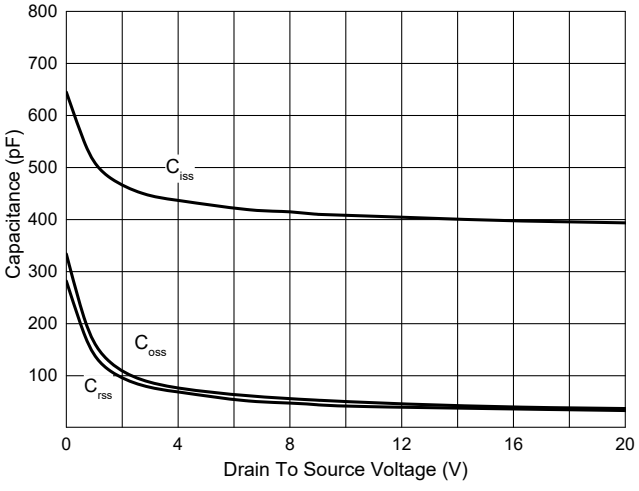


Fig. 6 - Capacitance Characteristics



Ordering Information

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