

## Features

- Trench Power LV MOSFET Technology
- Low  $R_{DS(ON)}$
- Low Gate Charge
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device <sup>(1)</sup>
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

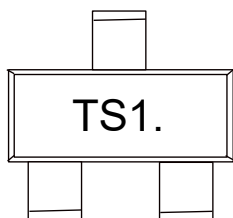
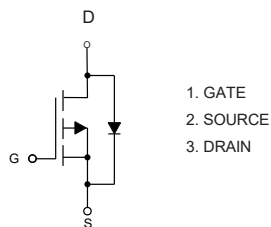
## Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 278°C/W Junction to Ambient <sup>(2)</sup>

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	-20	V
Gate-Source Voltage	$V_{GS}$	±10	V
Continuous Drain Current	$I_D$	-2	A
Pulsed Drain Current <sup>(3)</sup>	$I_{DM}$	-8	A
Total Power Dissipation	$P_D$	0.45	W

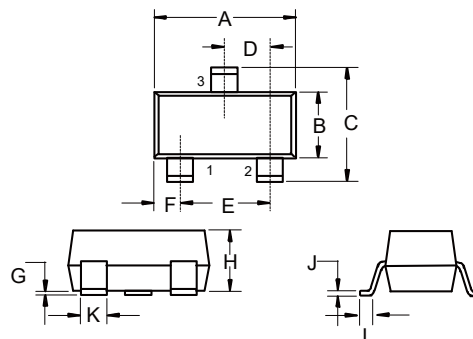
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.  
 2. Device Mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.  
 3. Pulse Test: Pulse Width ≤ 300µs, Duty Cycle ≤ 2%.

## Internal Structure and Marking Code



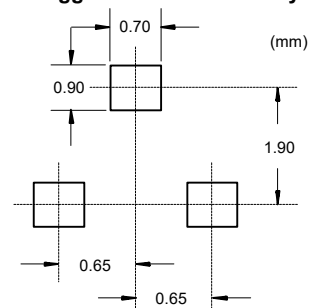
# P-CHANNEL MOSFET

## SOT-323



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



**Electrical Characteristics @ 25°C (Unless Otherwise Specified)**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20			V
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 10V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-20V, V_{GS}=0V$			-1	$\mu A$
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.4	-0.62	-1	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-1.5A$		100	130	m $\Omega$
		$V_{GS}=-2.5V, I_D=-1.2A$		130	170	m $\Omega$
		$V_{GS}=-1.8V, I_D=-1.0A$		165	250	m $\Omega$
<b>Diode Characteristics</b>						
Continuous Body Diode Current	$I_S$				-2	A
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=-2A$			-1.2	V
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=-10V, V_{GS}=0V, f=1MHz$		290		pF
Output Capacitance	$C_{oss}$			47		
Reverse Transfer Capacitance	$C_{rss}$			29		
Total Gate Charge	$Q_g$	$V_{DS}=-10V, V_{GS}=-4.5V, I_D=-1A$		3.9		nC
Gate-Source Charge	$Q_{gs}$			0.7		
Gate-Drain Charge	$Q_{gd}$			0.9		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=-10V, V_{GEN}=-4.5V, R_G=2.5\Omega, I_{DS}=-1A$		12		ns
Turn-On Rise Time	$t_r$			54		
Turn-Off Delay Time	$t_{d(off)}$			15		
Turn-Off Fall Time	$t_f$			9		

## Curve Characteristics

Fig. 1 - Typical Output Characteristics

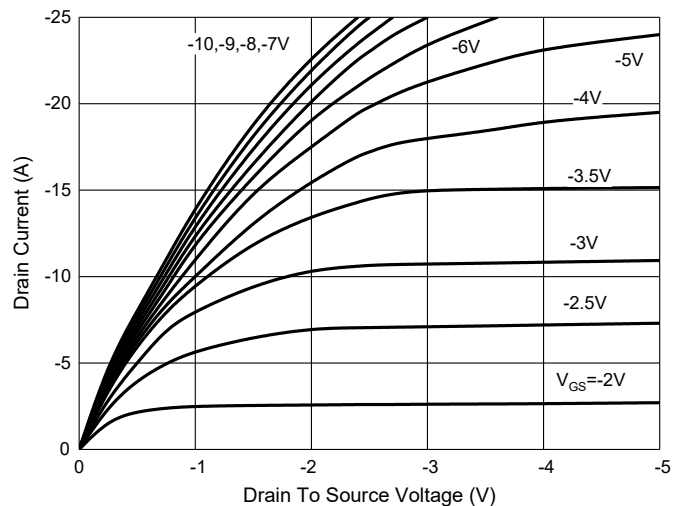


Fig. 2 - Transfer Characteristics

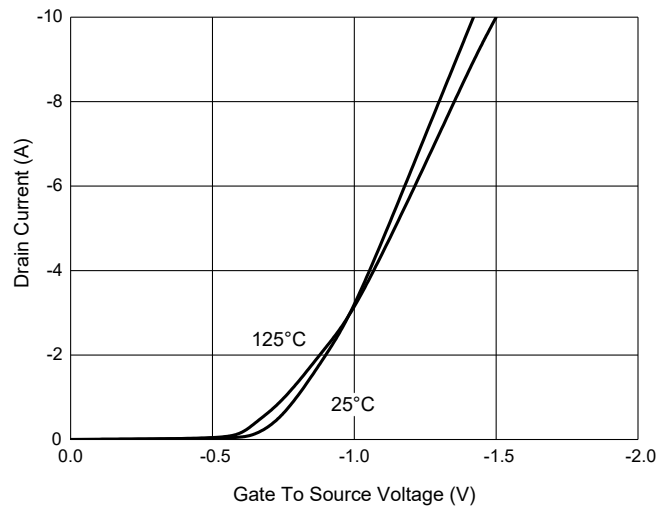


Fig. 3 -  $R_{DS(ON)} - I_D$

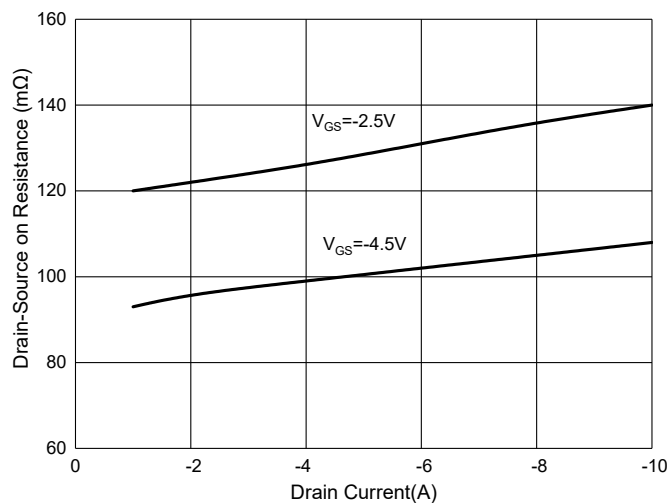


Fig. 4 - Normalized On Resistance Characteristics

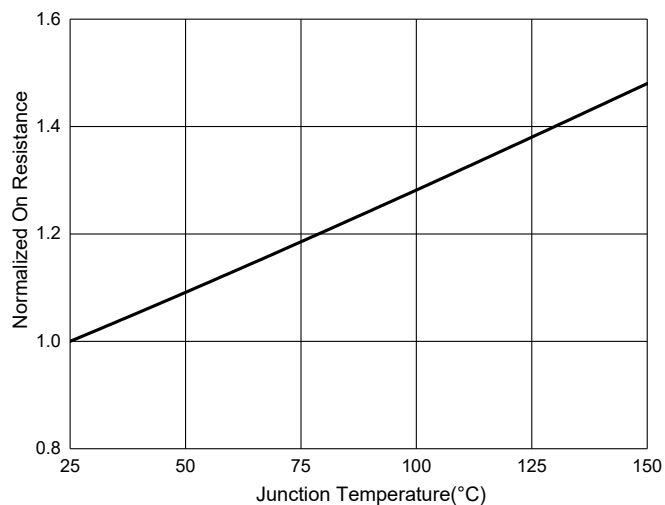


Fig. 5 - Capacitance Characteristics

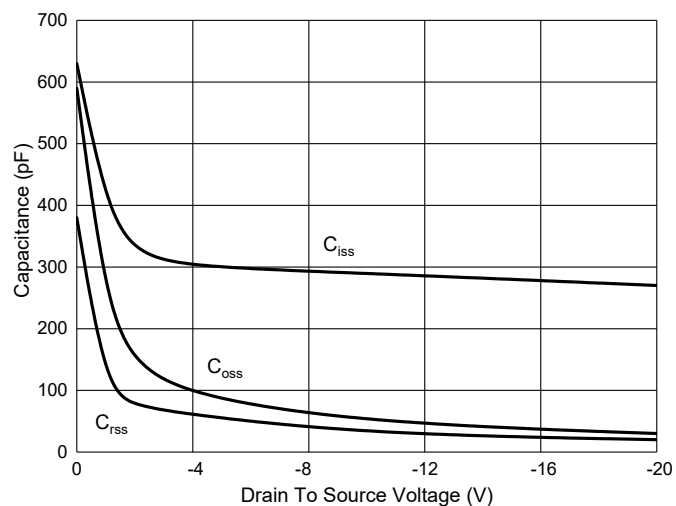
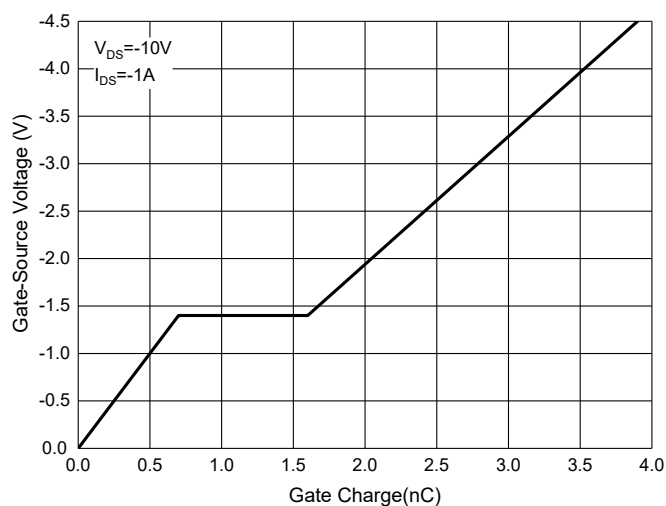
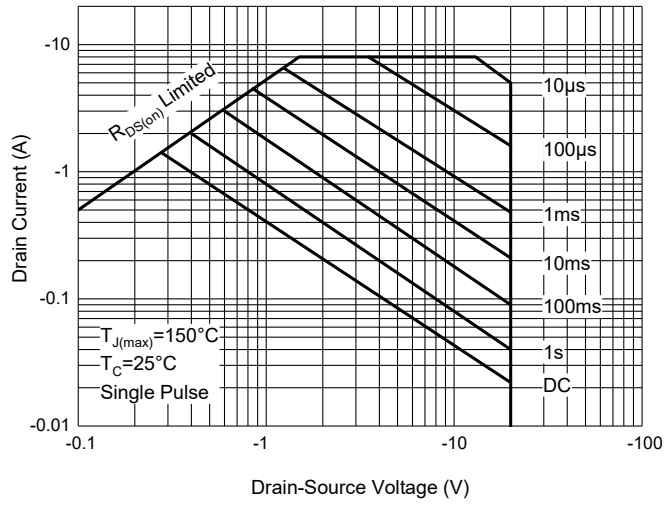


Fig. 6 - Gate Charge



## Curve Characteristics

Fig. 7 - Safe Operation Area



## Ordering Information

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

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