

## Features

- Energy Efficient
- High-Speed Switching
- 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

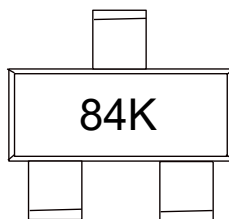
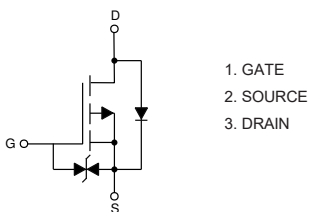
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 556°C/W Junction to Ambient (Note 2)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	-50	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current	$I_D$	-0.13	A
Pulsed Drain Current (Note 3)	$I_{DM}$	-0.52	A
Total Power Dissipation	$P_D$	225	mW

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

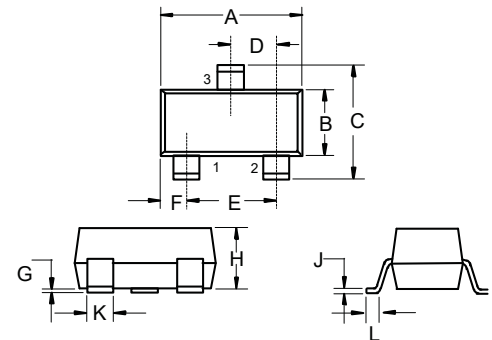
2. Surface Mounted on FR4 Board ,  $t \leq 10s$ .
3. Pulse Width Limited by Junction Temperature.

## Internal Structure and Marking Code



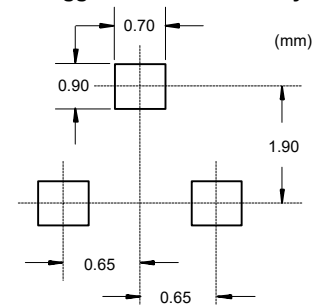
# P-CHANNEL MOSFET

## 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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-50			V
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 10$	$\mu A$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-50V, V_{GS}=0V$			-1	$\mu A$
Gate-Threshold Voltage <sup>(Note 4)</sup>	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.9	-1.7	-2	V
Drain-Source On-Resistance <sup>(Note 4)</sup>	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-0.1A$		2.3	8	$\Omega$
		$V_{GS}=-5V, I_D=-0.1A$		2.7	10	
Forward Transconductance <sup>(Note 4)</sup>	$g_{FS}$	$V_{DS}=-25V, I_D=-0.1A$	50			mS
<b>Dynamic Characteristics<sup>(Note 5)</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS}=-5V, V_{GS}=0V, f=1MHz$		22		pF
Output Capacitance	$C_{oss}$			7.5		
Reverse Transfer Capacitance	$C_{rss}$			4		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=-30V, V_{GEN}=-10V, R_G=3.9\Omega, R_L=75\Omega, I_{DS}=-0.2A$		5.5		ns
Turn-On Rise Time	$t_r$			4.7		
Turn-Off Delay Time	$t_{d(off)}$			27		
Turn-Off Fall Time	$t_f$			20		
<b>Drain-Source Body Diode Characteristics</b>						
Continuous Body Diode Current	$I_S$				-0.13	A
Pulsed Diode Forward Current	$I_{SM}$				-0.52	
Body Diode Voltage	$V_{SD}$	$I_{SD}=-0.13A, V_{GS}=0V$			-1.2	V

 Note 4. Pulse Test : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .

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

## Curve Characteristics

Fig. 1 - Typical Output Characteristics

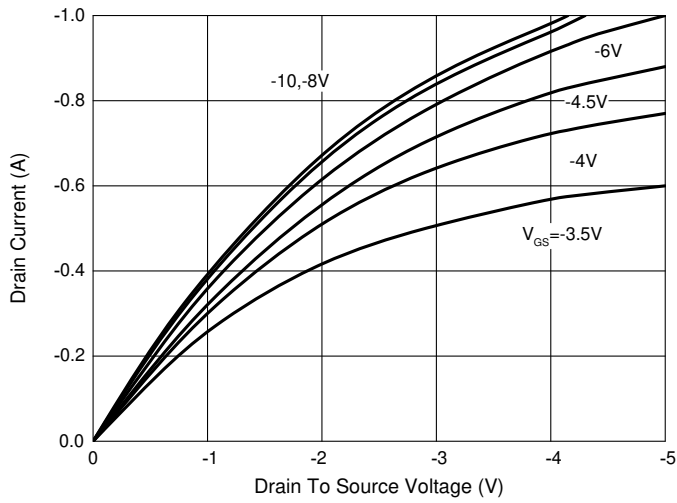


Fig. 2 - Transfer Characteristics

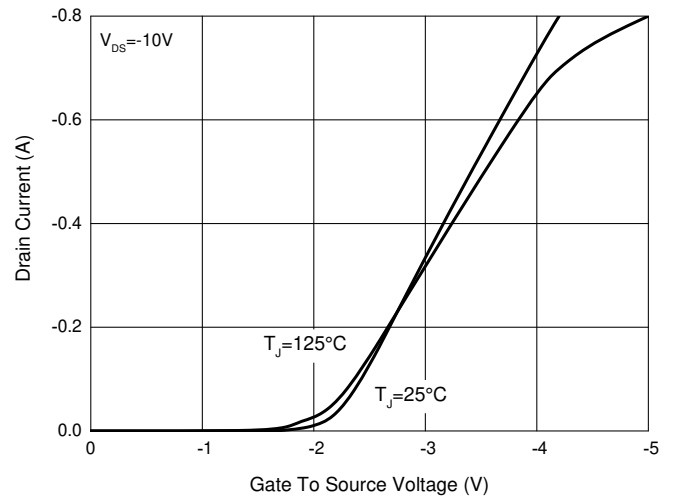


Fig. 3 -  $R_{DS(ON)} - I_D$

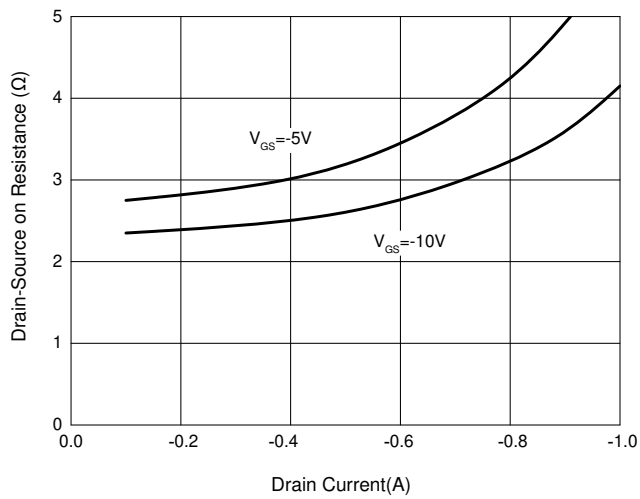


Fig. 4 -  $R_{DS(ON)} - V_{GS}$

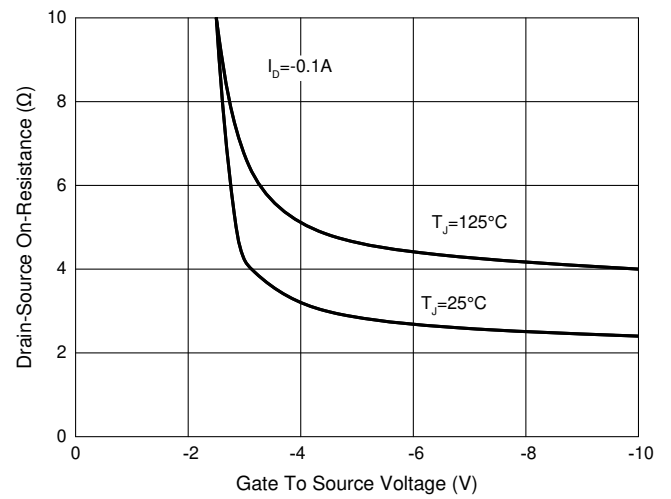


Fig. 5 -  $I_S - V_{SD}$

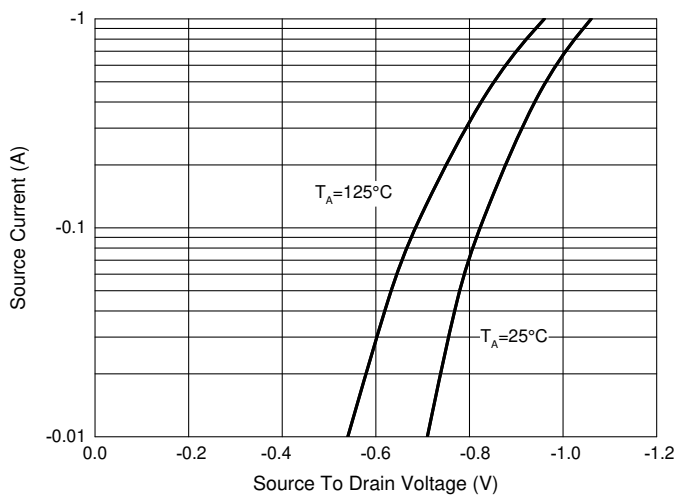
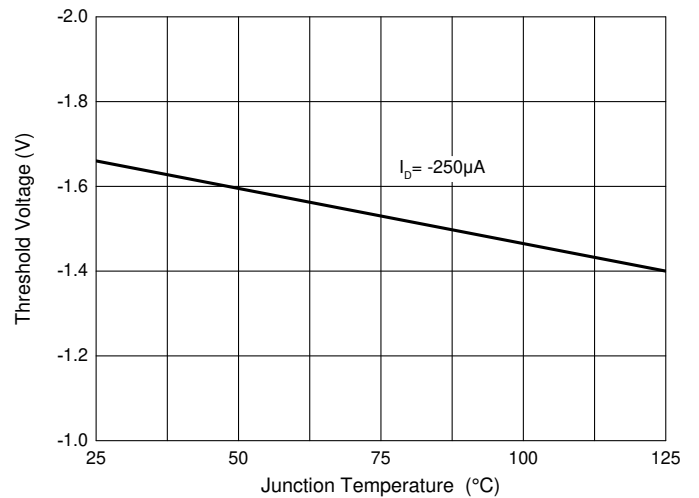


Fig. 6 - Threshold Voltage



## Ordering Information

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

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