

## Features

- High Density Cell Design for Ultra 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)

## Maximum Ratings

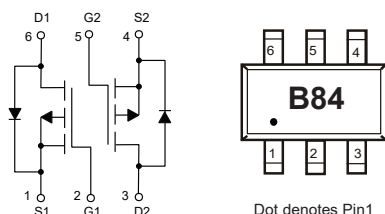
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 278°C/W Junction to Ambient

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		$V_{DS}$	-60	V
Gate-Source Voltage		$V_{GS}$	±20	V
Continuous Drain Current	$T_A=25^\circ\text{C}$	$I_D$	-0.16	A
	$T_A=100^\circ\text{C}$		-0.1	
Pulsed Drain Current		$I_{DM}$	-0.64	A
Total Power Dissipation		$P_D$	450	mW

Note:

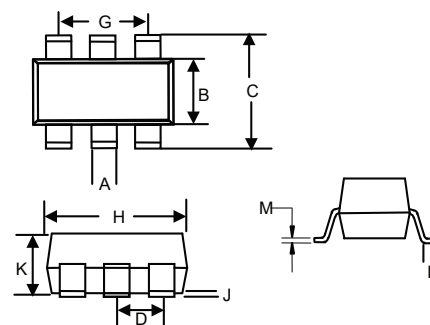
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of  $R_{\theta JA}$  is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with  $T_A=25^\circ\text{C}$ .
3. Repetitive rating; pulse width limited by max. junction temperature.
4.  $P_D$  is based on max. junction temperature, using junction-ambient thermal resistance.

## Internal Structure and Marking Code



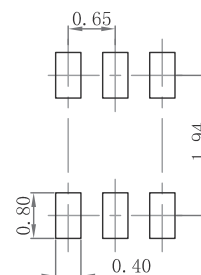
## Dual P-CHANNEL MOSFET

## SOT-363



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.006	0.014	0.15	0.35	
B	0.045	0.053	1.15	1.35	
C	0.079	0.096	2.00	2.45	
D	0.026		0.65		TYP.
G	0.047	0.055	1.20	1.40	
H	0.071	0.087	1.80	2.20	
J	-----	0.004	-----	0.10	
K	0.031	0.043	0.80	1.10	
L	0.010	0.018	0.26	0.46	
M	0.003	0.006	0.08	0.15	

## 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 <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =-250μA	-60			V
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-60V, V <sub>GS</sub> =0V			-1	μA
		V <sub>DS</sub> =-25V, V <sub>GS</sub> =0V			-100	nA
Gate-Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA	-0.9	-1.3	-2.0	V
Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =-10V, I <sub>D</sub> =-0.15A		2.9	8	Ω
		V <sub>GS</sub> =-5V, I <sub>D</sub> =-0.1A		3.2	10	
Gate Resistance	R <sub>g</sub>	f=1 MHz, Open drain		26		Ω
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =-5V, I <sub>D</sub> =-130mA		250		mS
Diode Characteristics						
Continuous Body Diode Current	I <sub>S</sub>				-0.16	A
Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =-0.17A			-1.2	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> =-0.15A, di/dt=100A/μs		10		ns
Reverse Recovery Charge	Q <sub>rr</sub>			4		nC
Dynamic Characteristics						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-25V, V <sub>GS</sub> =0V, f=1MHz		39		pF
Output Capacitance	C <sub>oss</sub>			4		
Reverse Transfer Capacitance	C <sub>rss</sub>			2.5		
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =-25V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-0.15A		2.4		nC
Gate-Source Charge	Q <sub>gs</sub>			0.4		
Gate-Drain Charge	Q <sub>gd</sub>			0.4		
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DS</sub> =-30V, V <sub>GS</sub> =-10V, R <sub>G</sub> =2.5Ω, I <sub>D</sub> =-0.15A		9		ns
Turn-On Rise Time	t <sub>r</sub>			4		
Turn-Off Delay Time	t <sub>d(off)</sub>			46		
Turn-Off Fall Time	t <sub>f</sub>			24		

## Curve Characteristics

Fig. 1 - Typical Output Characteristics

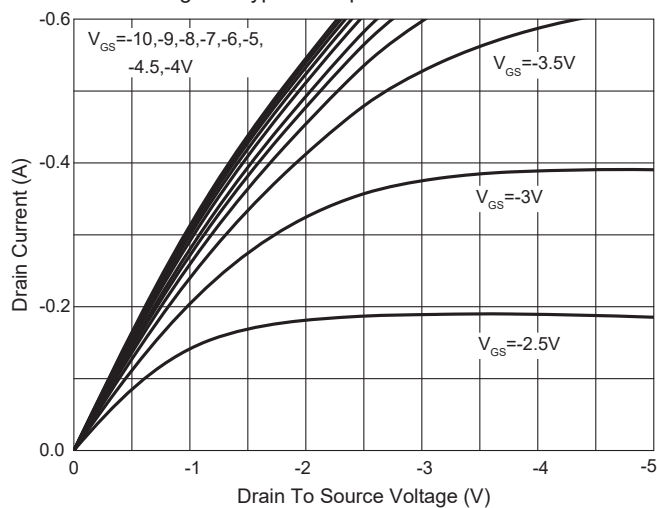


Fig. 2 - Transfer Characteristics

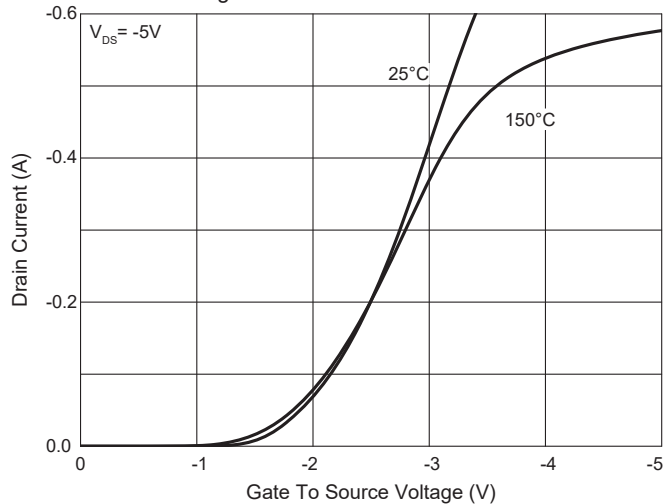


Fig.3- $R_{DS(ON)}-V_{GS}$

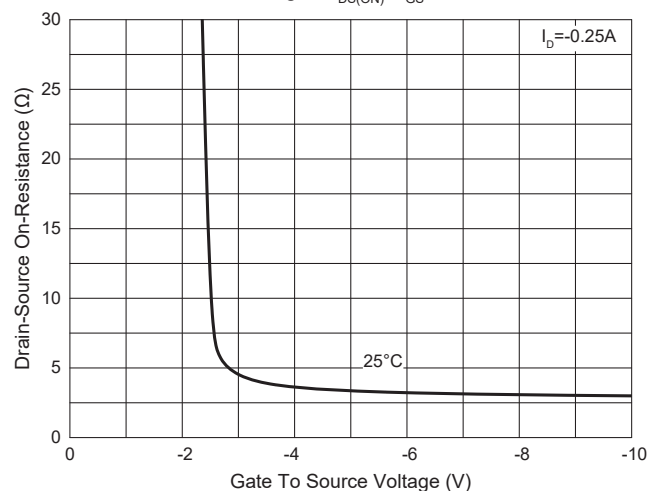


Fig.4- $R_{DS(ON)}-I_D$

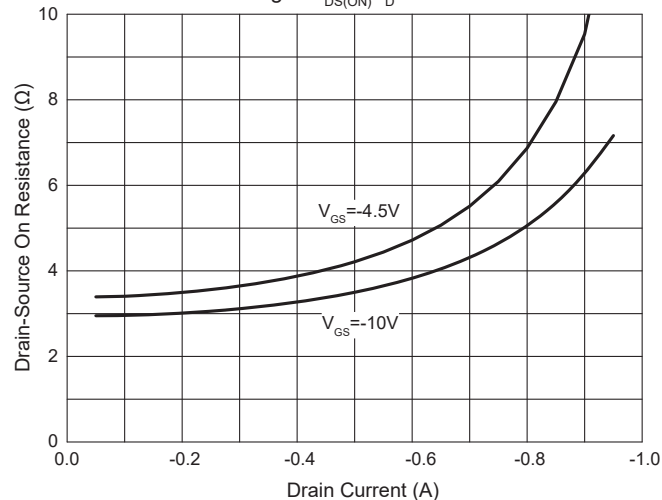


Fig. 5 - Capacitance Characteristics

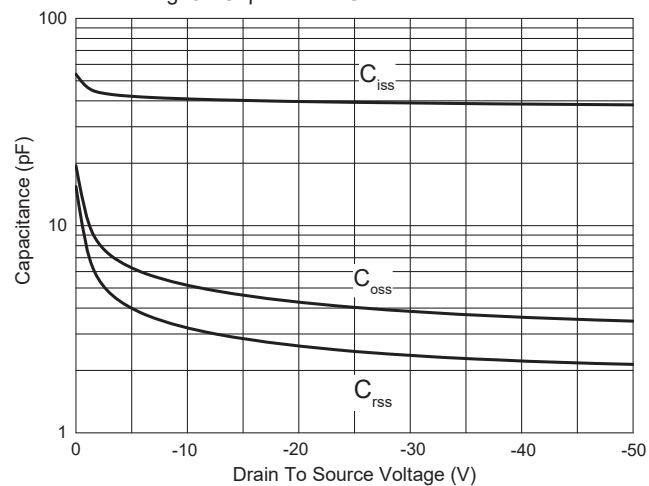
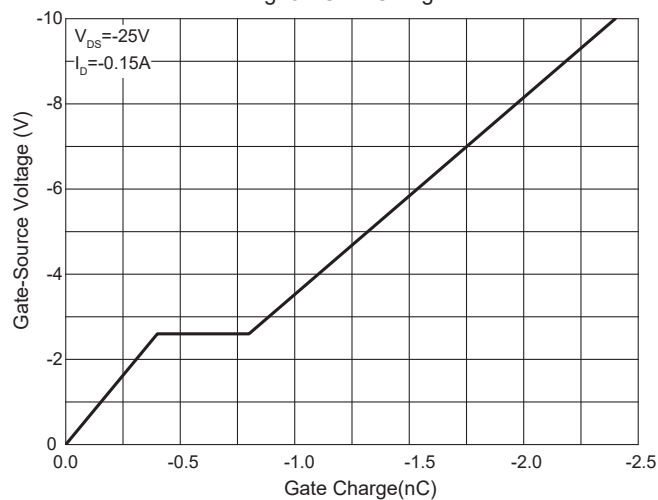


Fig. 6 - Gate Charge



## Curve Characteristics

Fig. 7 - Normalized Threshold Voltage

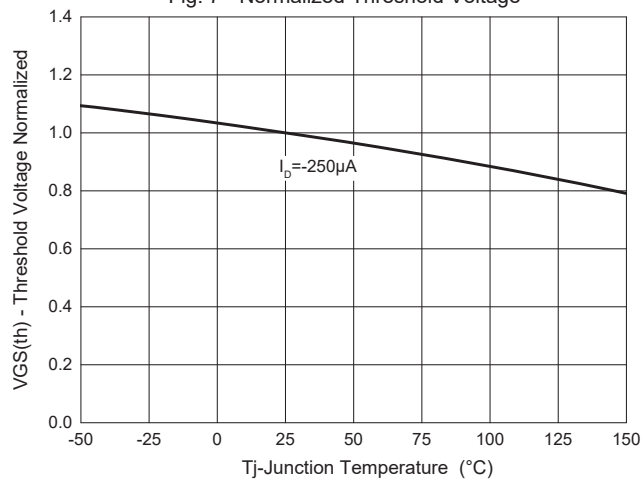


Fig. 8 - Normalized On Resistance Characteristics

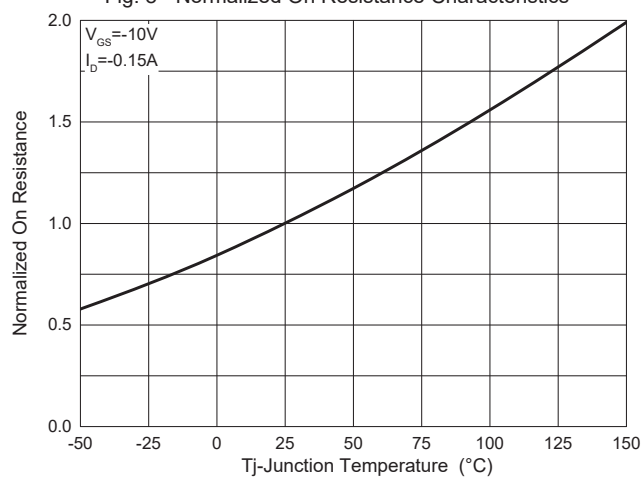


Fig. 9 -  $I_S - V_{SD}$

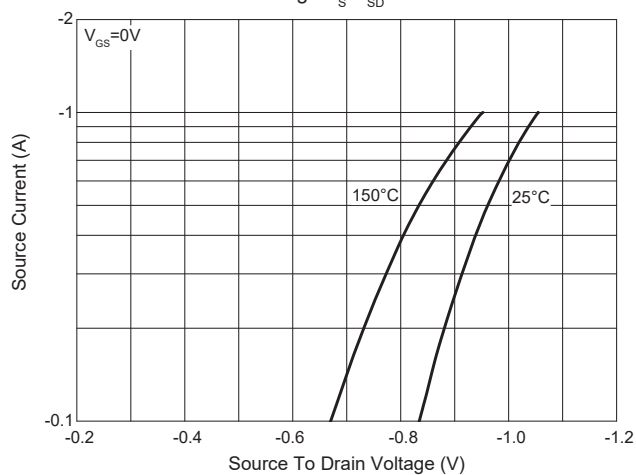


Fig. 10 - Drain Current

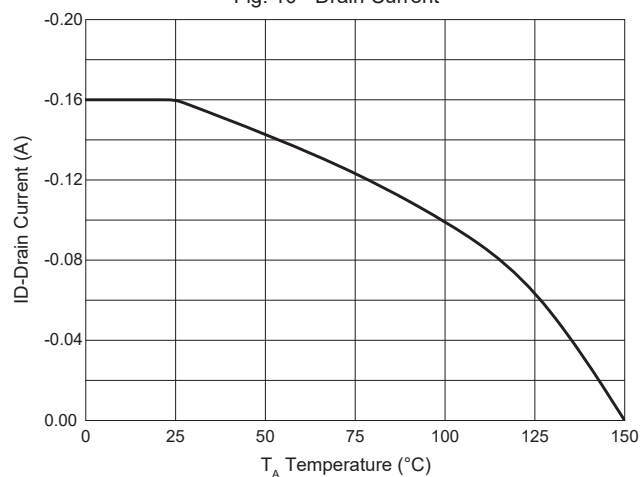
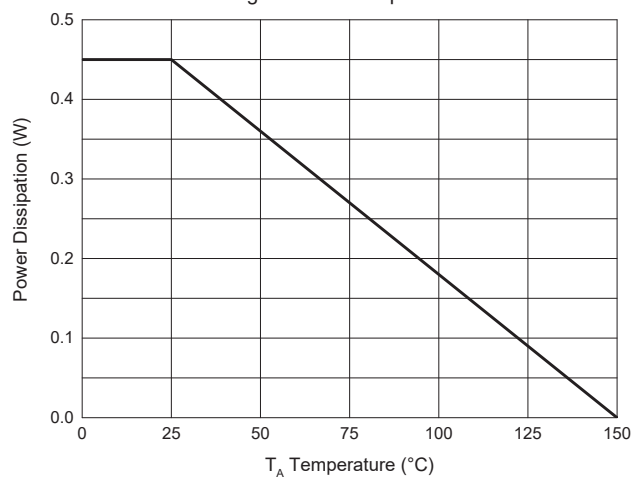


Fig. 11 - PD Dissipation



## Curve Characteristics

Fig. 12 - Safe Operation Area

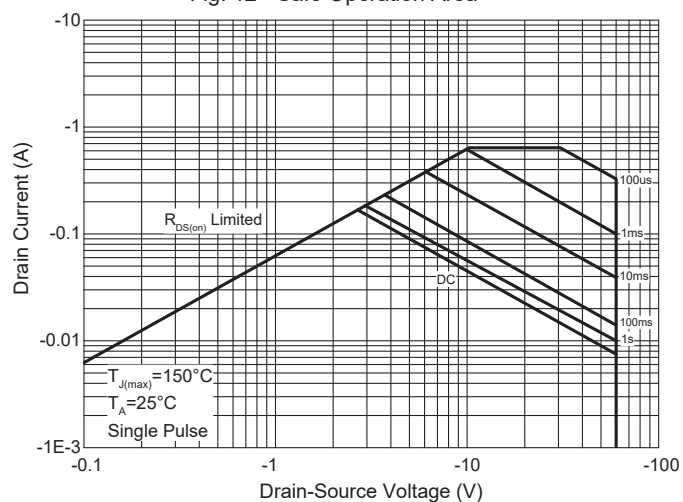
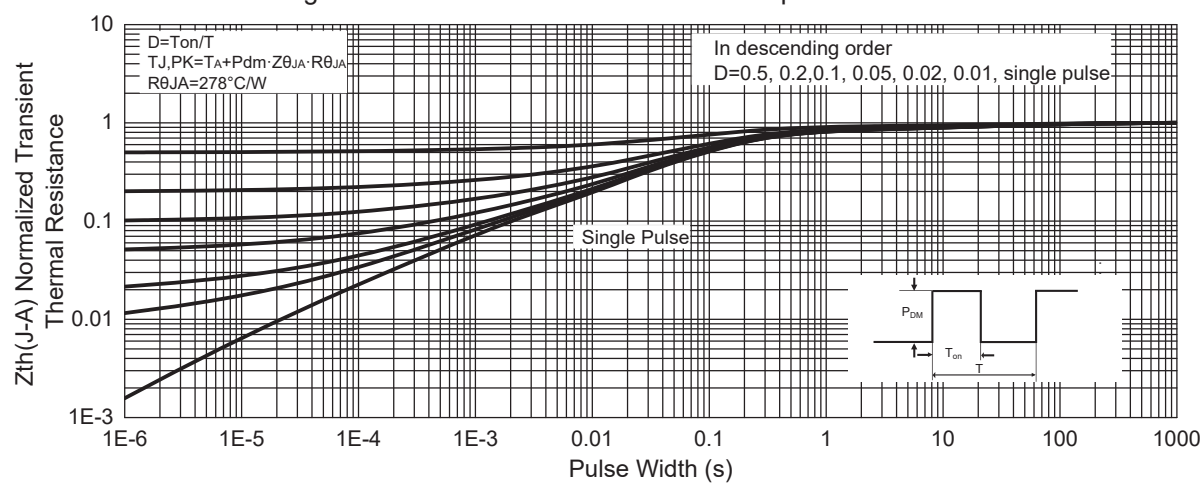


Fig. 13 - Normalized Transient Thermal Impedance



## Ordering Information

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

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