

**Features**

- ESD Protected up to 2KV (HBM)
- P-Channel Switch with 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)

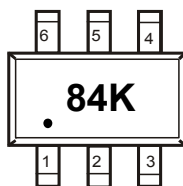
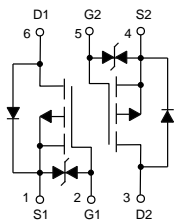
**Maximum Ratings**

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Maximum Thermal Resistance: 300°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	$I_D$	$T_A=25^\circ\text{C}$	-0.32 A
		$T_A=100^\circ\text{C}$	-0.2 A
Plused Drain Current (Note2)	$I_{DM}$	-1.28	A
Power Dissipation (Note3)	$P_D$	0.42	W

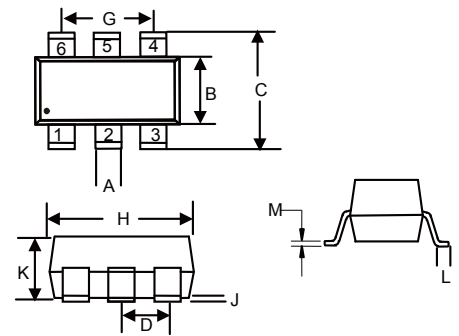
Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.  
 2. Repetitive rating: Pulse width limited by junction temperature.  
 3. Surface mounted on FR4 board,  $t \leq 10s$ .

**Internal Structure and Marking Code**



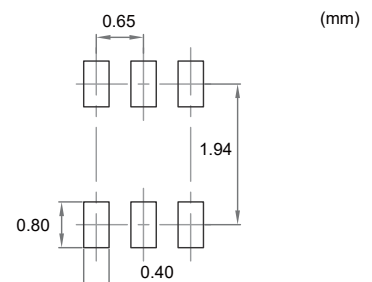
**Dual  
P-Channel  
MOSFET**

**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 (Ta=25°C unless otherwise specified)**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-60			V
Gate-Threshold Voltage <sup>(Note 4)</sup>	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1		-2	V
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$			$\pm 10$	$\mu A$
Drain Leakage Current	$I_{DSS}$	$V_{DS}=-60V, V_{GS}=0V$			-1	$\mu A$
Drain-Source On-Resistance <sup>(Note 4)</sup>	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-0.3A$		2.2	6	$\Omega$
		$V_{GS}=-4.5V, I_D=-0.2A$		2.5	7	
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=-0.3A$			-1.3	V
<b>Dynamic Characteristics<sup>(Note 4)</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS}=-30V, V_{GS}=0V, f=1MHz$		32		pF
Output Capacitance	$C_{oss}$			2.3		
Reverse Transfer Capacitance	$C_{rss}$			1.6		
Total Gate Charge	$Q_g$	$V_{DS}=-30V, V_{GS}=-10V, I_D=-0.3A$		1.6		nC
Gate-Source Charge	$Q_{gs}$			0.4		
Gate-Drain Charge	$Q_{gd}$			0.2		
<b>Switching Characteristics<sup>(Note 5)</sup></b>						
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=-30V, V_{GEN}=-10V, R_G=3.9\Omega, R_L=100\Omega, I_{DS}=-0.3A$		5.5		ns
Turn-On Rise Time	$t_r$			4.5		
Turn-Off Delay Time	$t_{d(off)}$			26		
Turn-Off Fall Time	$t_f$			18		

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

5. Guaranteed by design, not subject to production.

**Curve Characteristics**

Fig. 1 - Typical Output Characteristics

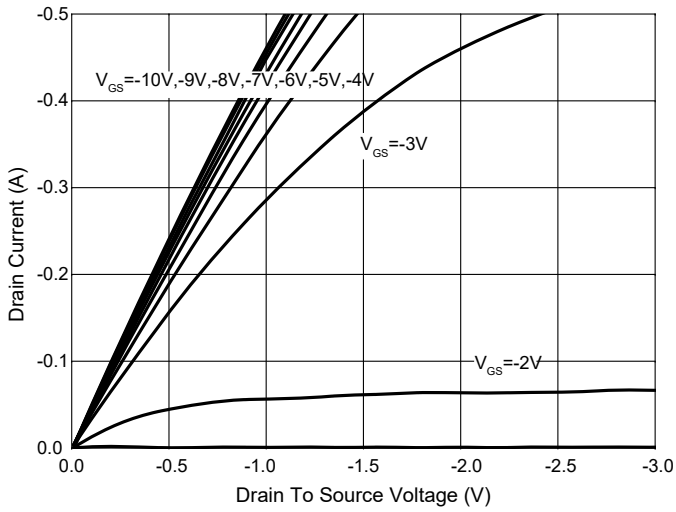


Fig.2 -  $R_{DS(ON)} - I_D$

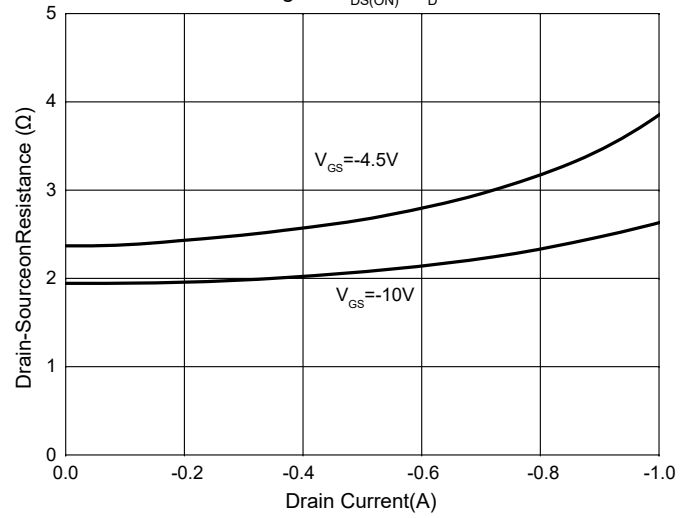


Fig. 3 - Normalized Threshold Voltage

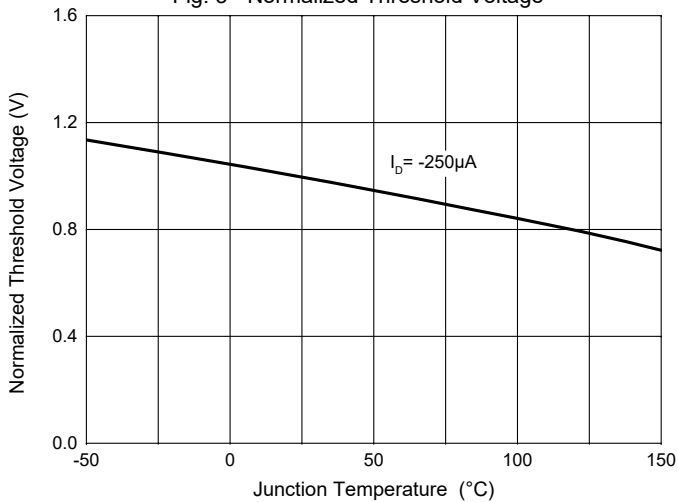


Fig. 4 -  $I_S - V_{SD}$

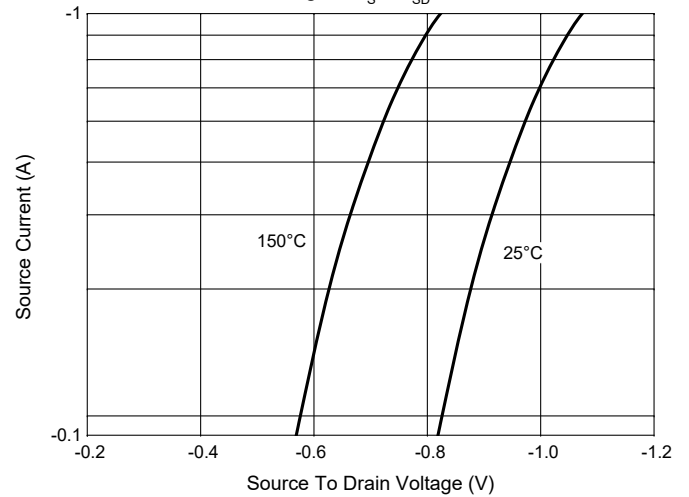


Fig. 5 - Normalized On Resistance Characteristics

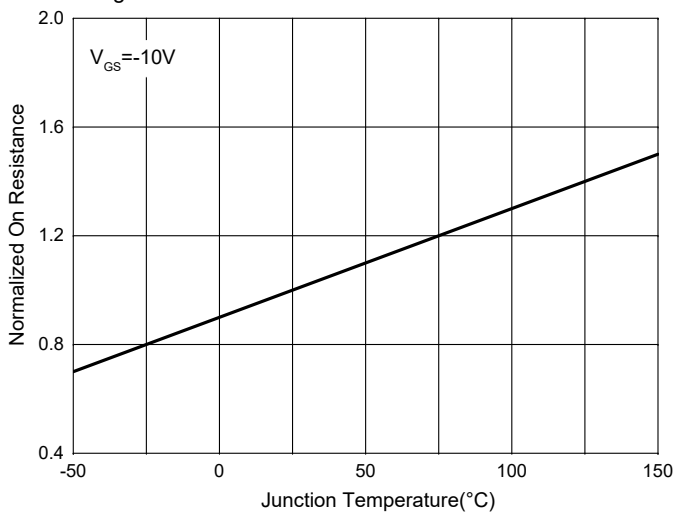
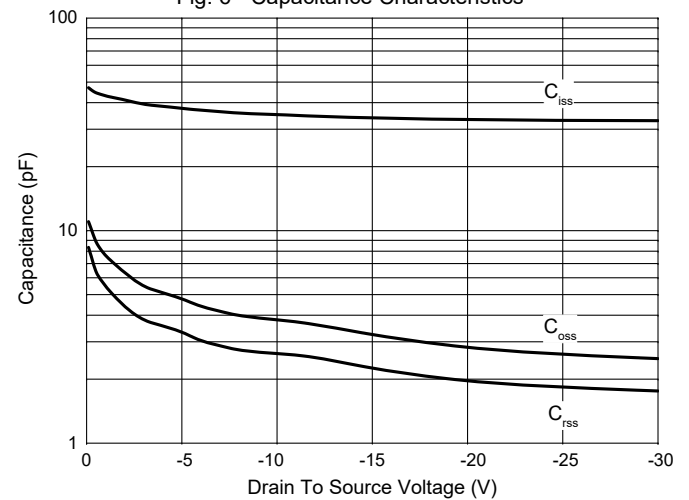


Fig. 6 - Capacitance Characteristics



**Curve Characteristics**

Fig. 7 - Gate Charge

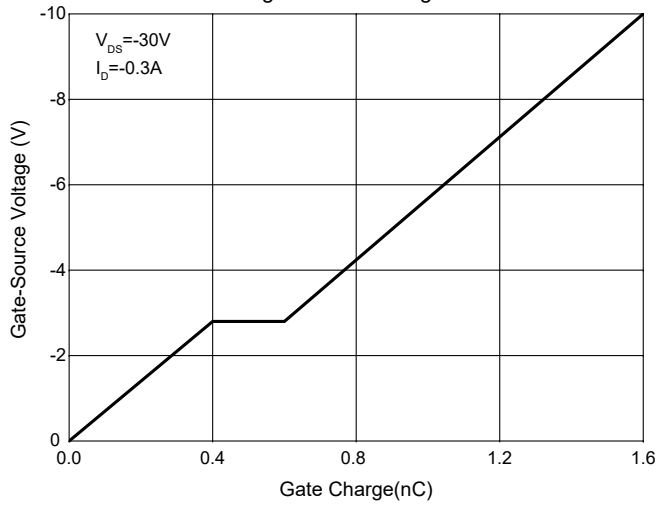


Fig. 8 - Safe Operation Area

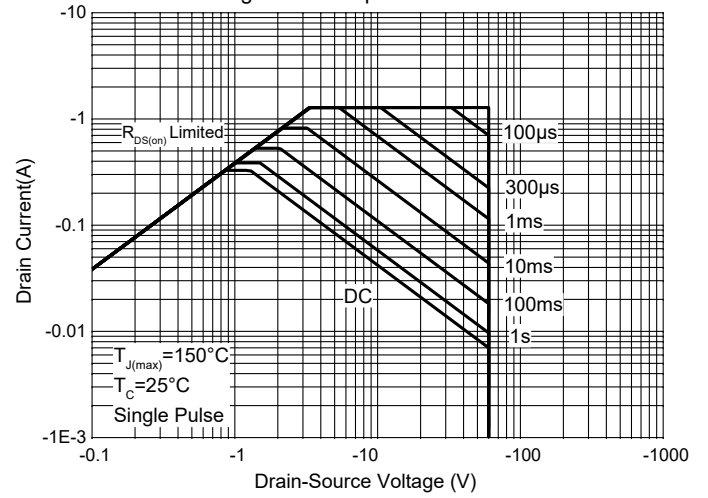
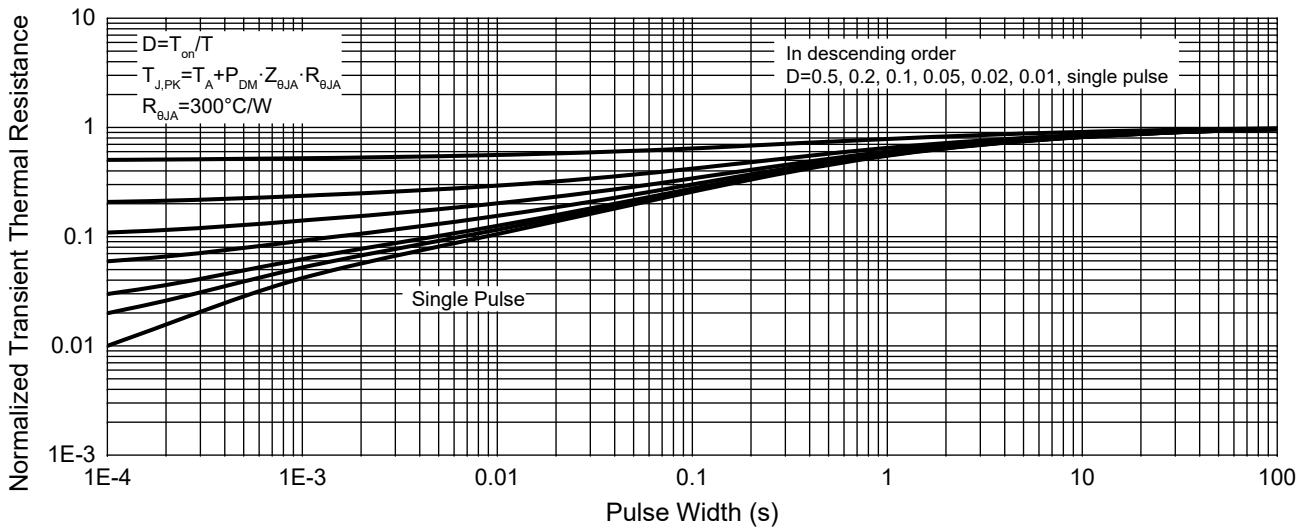


Fig. 9 - Normalized Transient Thermal Impedance



## Ordering Information

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

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