

Features

- Trench MV MOSFET Technology
- ESD Protected Up To 2KV (HBM)
- P-Channel Switch With Low $R_{DS(on)}$
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note 1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

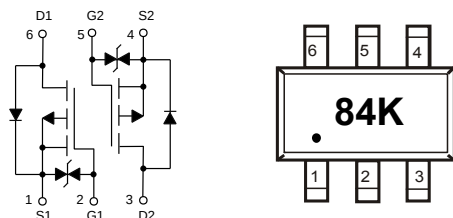
- Operating Junction Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Storage Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Thermal Resistance: 400°C/W Junction to Ambient (Note 2)

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	-0.32	A
	$T_A = 100^{\circ}\text{C}$		-0.2	
Plused Drain Current (Note 3)		I_{DM}	-1.28	A
Power Dissipation (Note 4)		P_D	0.31	W

Note:

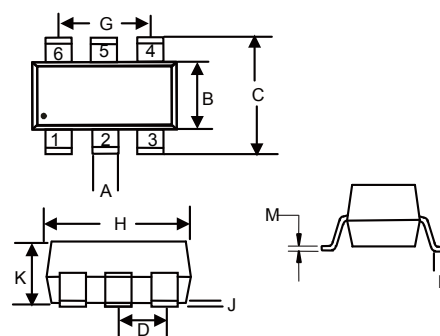
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on the minimum recommend pad size, in a still air environment with $T_A = 25^{\circ}\text{C}$.
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



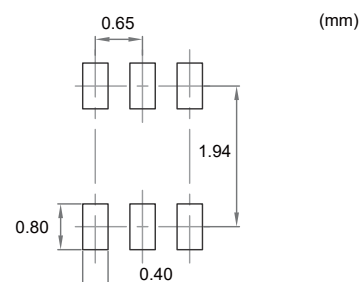
Dual P-Channel MOSFET

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 _{(BR)DSS}	V _{GS} =0V, I _D =-250μA	-60			V
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1.0	-1.5	-2.0	V
Gate-Body Leakage Current	I _{GSS}	V _{GS} =± 20V, V _{DS} =0V			±10	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-60V, V _{GS} =0V			-1	μA
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-0.3A		2.2	6	Ω
		V _{GS} =-4.5V, I _D =-0.2A		2.5	7	
Forward Transconductance	g _{FS}	V _{DS} =-5V, I _D =-0.3A		0.16		S
Gate Resistance	R _g	f=1 MHz, Open drain		1100		Ω
Diode Characteristics						
Continuous Body Diode Current	I _S				-0.32	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =-0.3A			-1.3	V
Reverse Recovery Time	t _{rr}	I _F =-0.3A, dI _F /dt=100A/μs		13		ns
Reverse Recovery Charge	Q _{rr}			7		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-30V, V _{GS} =0V, f=1MHz		37		pF
Output Capacitance	C _{oss}			5.8		
Reverse Transfer Capacitance	C _{rss}			3.7		
Total Gate Charge	Q _g	V _{DS} =-30V, V _{GS} =-10V, I _D =-0.3A		2.5		nC
Gate-Source Charge	Q _{gs}			0.47		
Gate-Drain Charge	Q _{gd}			0.33		
Turn-On Delay Time	t _{d(on)}	V _{DD} =-30V, V _{GS} =-10V, R _G =3.9Ω, I _D =-0.3A		4.5		ns
Turn-On Rise Time	t _r			3.4		
Turn-Off Delay Time	t _{d(off)}			32		
Turn-Off Fall Time	t _f			19		

Curve Characteristics

Fig.1 - Typical Output Characteristics

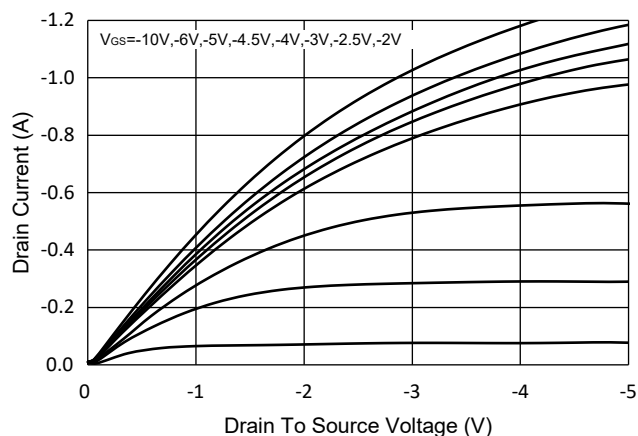


Fig.2 - Transfer Characteristic

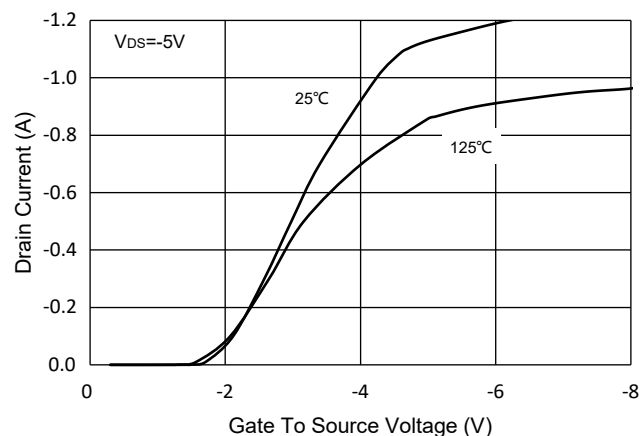


Fig.3 - $R_{DS(ON)}$ - V_{GS}

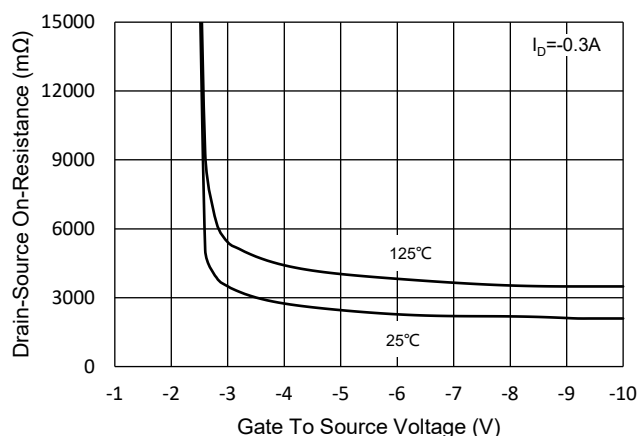


Fig.4 - $R_{DS(ON)}$ - I_D

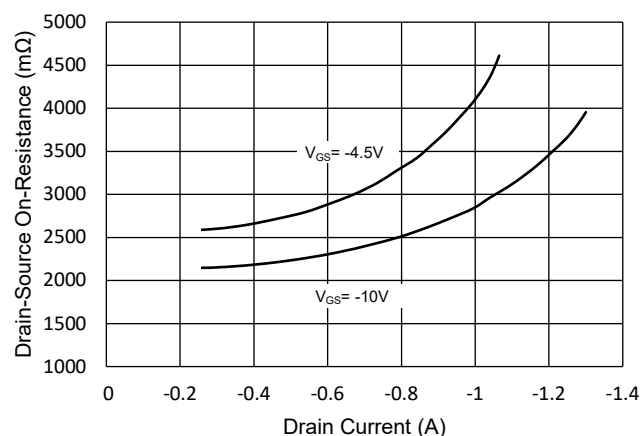


Fig.5 - Capacitance Characteristics

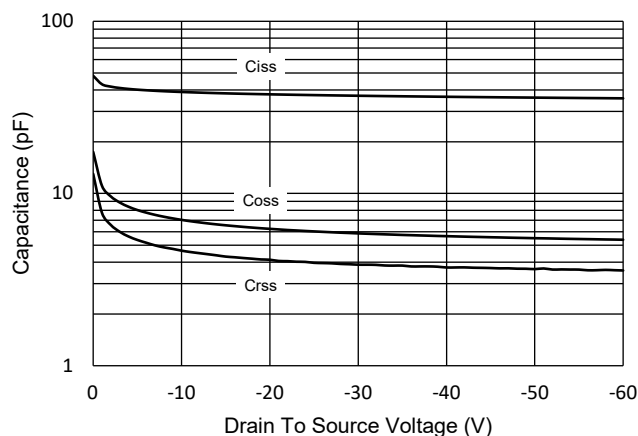
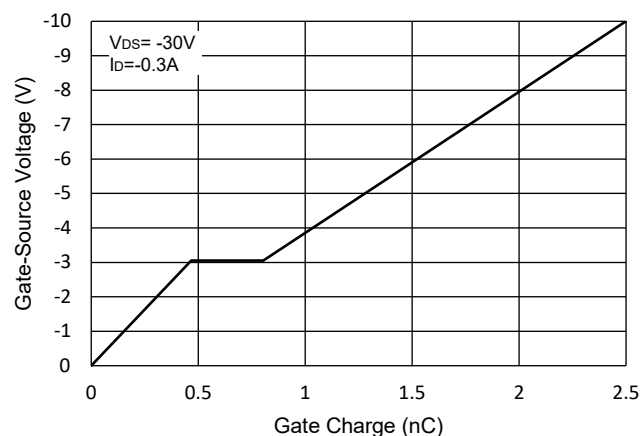


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

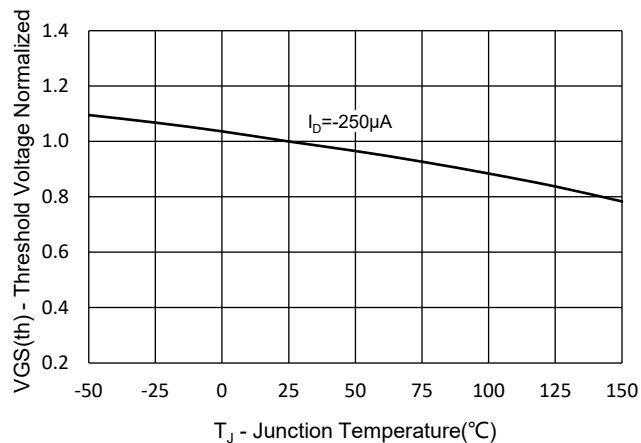


Fig.8 - Normalized On Resistance Characteristics

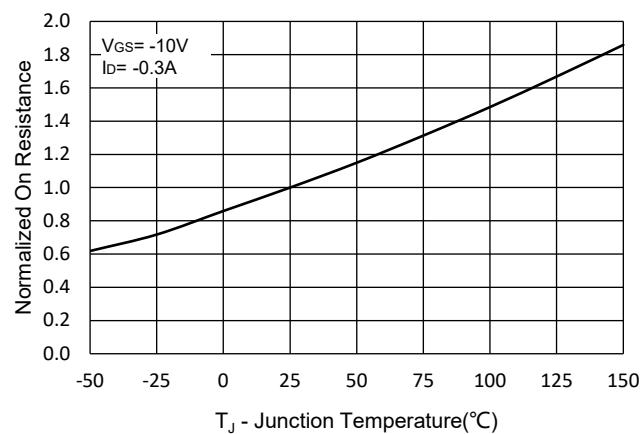


Fig.9 - $I_S - V_{SD}$

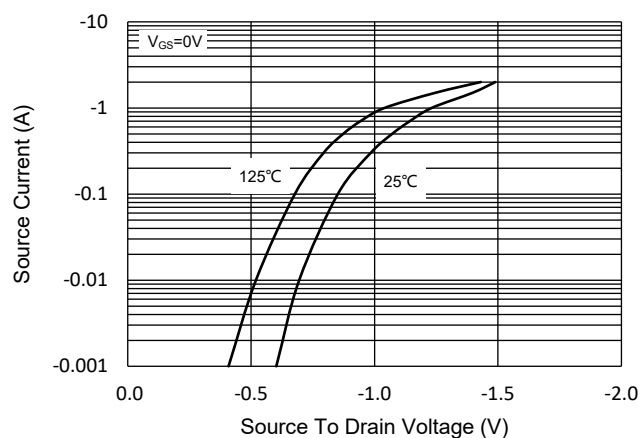


Fig.10 - Drain Current

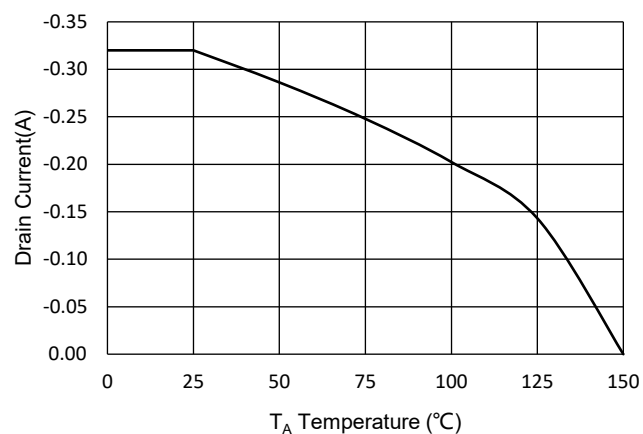
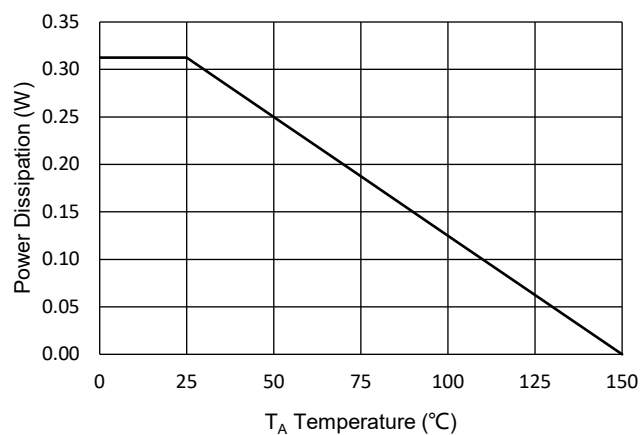


Fig.11 - PD Dissipation



Curve Characteristics

Fig.12 - Safe Operation Area

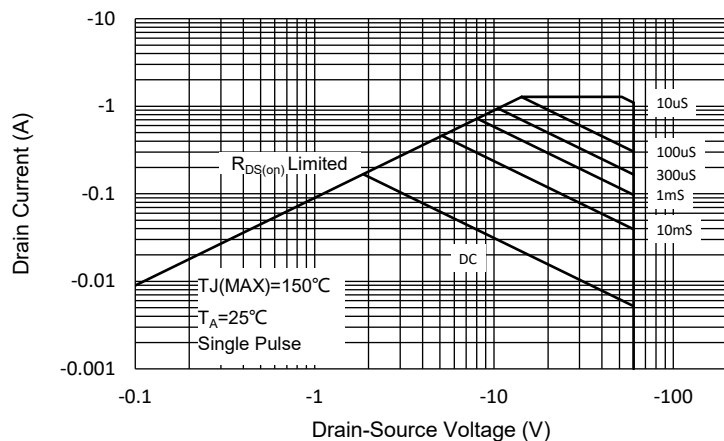
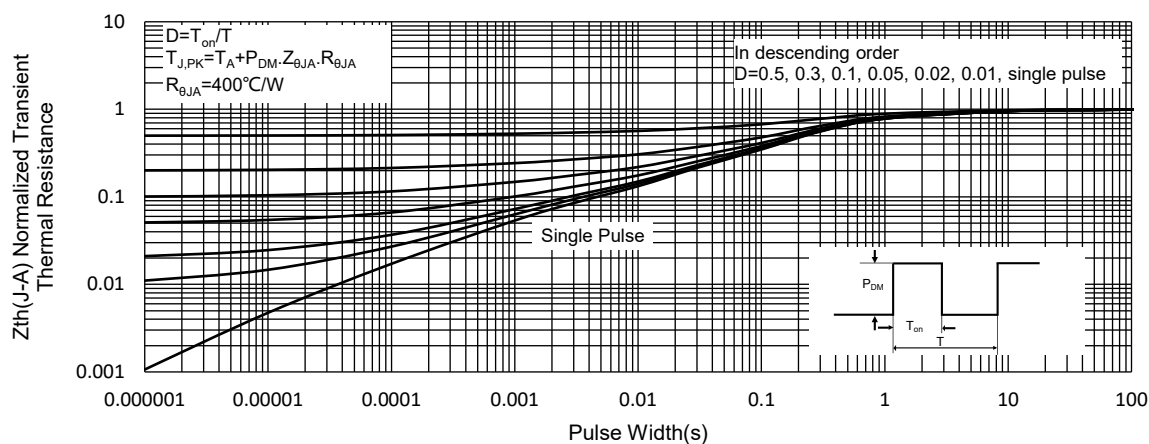


Fig.13 - Normalized Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:3Kpcs/Reel
Part Number-TPQ2	Tape&Reel:3Kpcs/Reel

For packaging details, go to our website at <https://www.mccsemi.com/pdf/ProductPackaging/SOT-363%20Package.pdf>

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