

Features

- High Density Cell Design for Low RDS(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

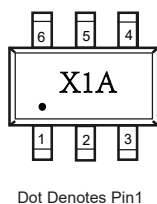
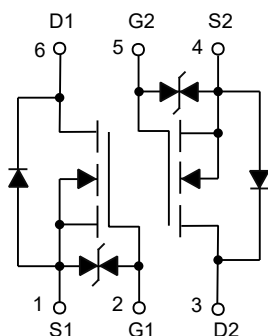
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 355°C/W Junction to Ambient (Note 2)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	$T_A=25^\circ\text{C}$	500
		$T_A=100^\circ\text{C}$	316
Pulsed Drain Current (Note 3)	I_{DM}	2	A
Total Power Dissipation (Note 4)	P_D	352	mW

Note:

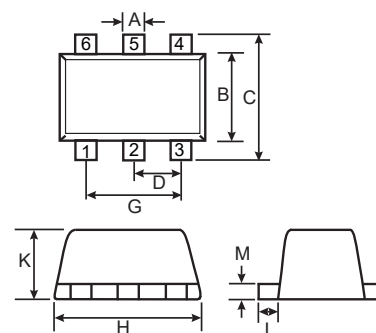
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of RθJA is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with TA =25°C.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. PD is based on max. junction temperature, using junction-ambient thermal resistance.

Internal Structure and Marking Code



DUAL N-Channel MOSFET

SOT-563



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.006	0.011	0.15	0.30	
B	0.043	0.051	1.10	1.30	
C	0.059	0.067	1.50	1.70	
D	0.020		0.50		TYP.
G	0.035	0.043	0.90	1.10	
H	0.059	0.067	1.50	1.70	
K	0.022	0.026	0.55	0.65	
L	0.004	0.011	0.10	0.30	
M	0.004	0.007	0.10	0.18	

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	30			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.7	1	1.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=300mA$		398	750	m Ω
		$V_{GS}=4.5V, I_D=200mA$		546	960	
Forward Transconductance	g_{FS}	$V_{DS}=5V, I_D=0.5A$		579		mS
Gate Resistance	R_g	$V_{GS}=0V, f=1MHz$		86		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				0.5	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=250mA$			1.2	V
Reverse Recovery Time	t_{rr}	$I_F=0.5A, dI_F/dt=100A/\mu s$		8.6		ns
Reverse Recovery Charge	Q_{rr}			1.6		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V, f=1MHz$		13.9		pF
Output Capacitance	C_{oss}			6		
Reverse Transfer Capacitance	C_{rss}			1.8		
Total Gate Charge	Q_g	$V_{DS}=15V, V_{GS}=10V, I_D=0.5A$		0.8		nC
Gate-Source Charge	Q_{gs}			0.2		
Gate-Drain Charge	Q_{gd}			0.1		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=15V, V_{GS}=10V, I_D=0.5A, R_G=6\Omega$		2.2		ns
Turn-On Rise Time	t_r			2.9		
Turn-Off Delay Time	$t_{d(off)}$			7		
Turn-Off Fall Time	t_f			7.3		

Curve Characteristics

Fig.1 - Typical Output Characteristics

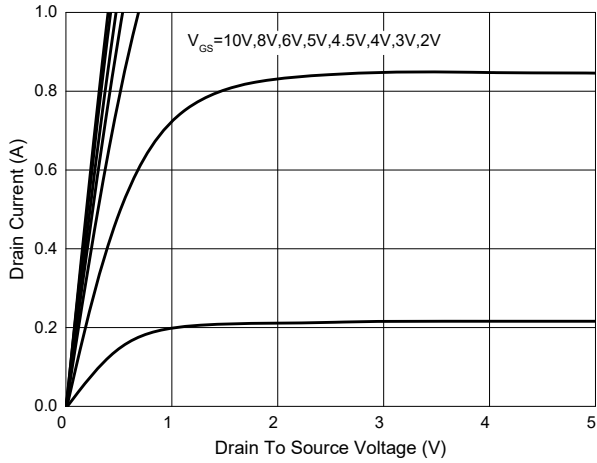


Fig.2 - Transfer Characteristic

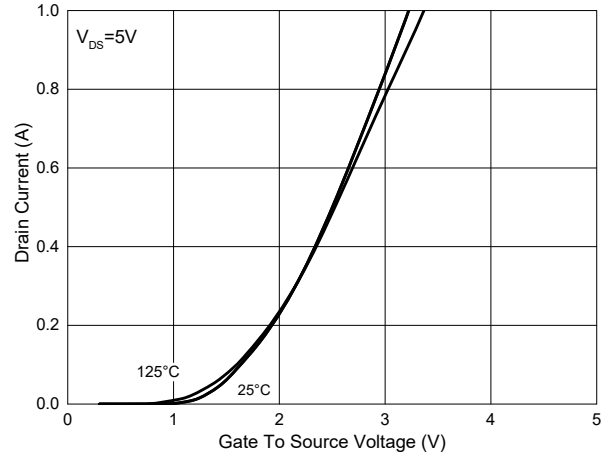


Fig.3 - $R_{DS(ON)}$ - V_{GS}

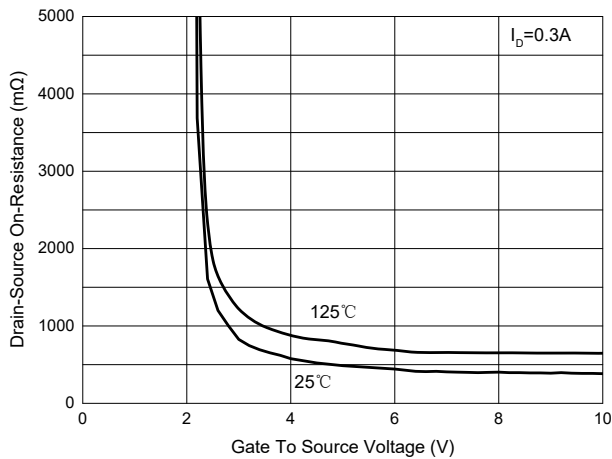


Fig.4 - $R_{DS(ON)}$ - I_D

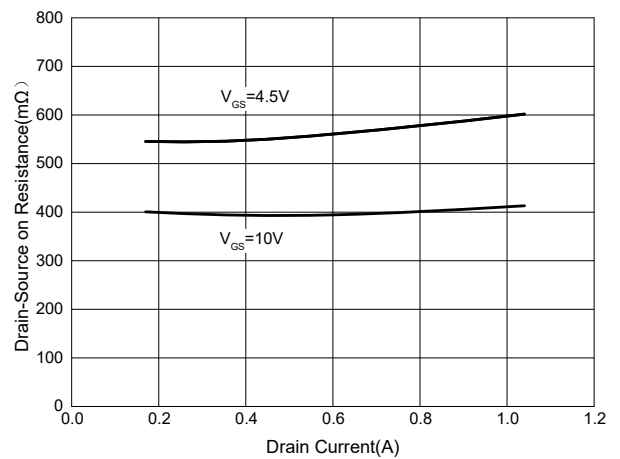


Fig.5 - Capacitance Characteristics

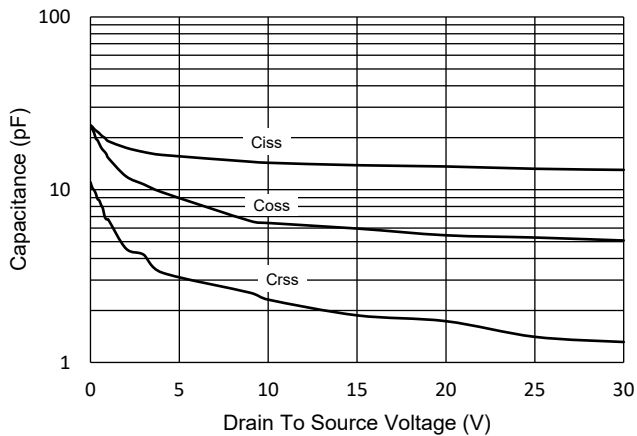
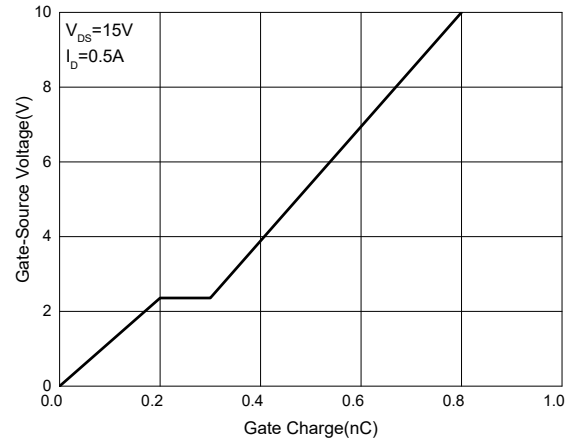


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

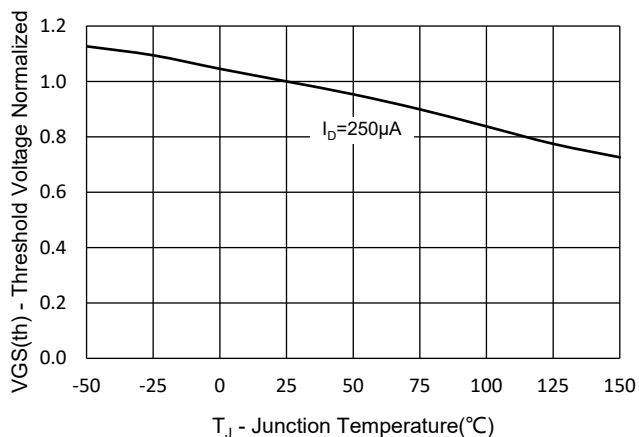


Fig.8 - Normalized On Resistance Characteristics

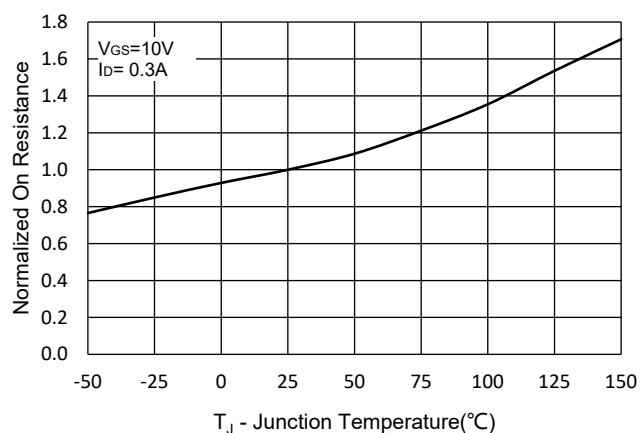


Fig.9 - $I_S - V_{SD}$

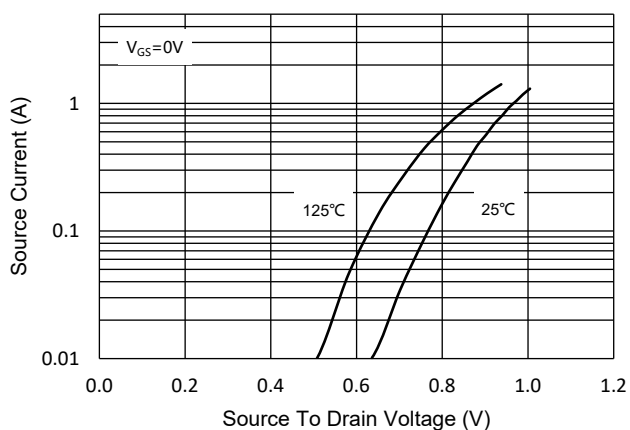


Fig.10 - Drain Current

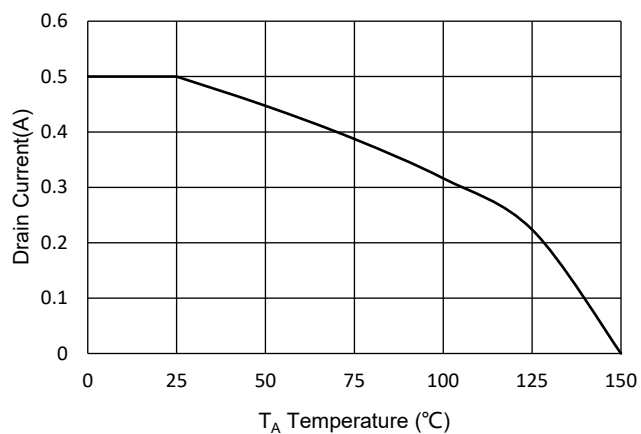
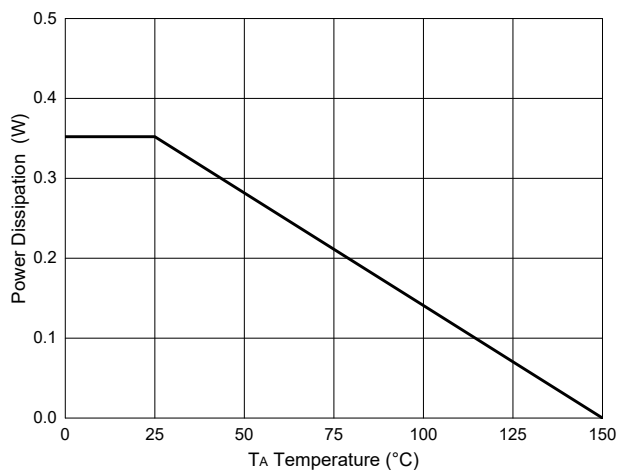


Fig.11 - PD Dissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

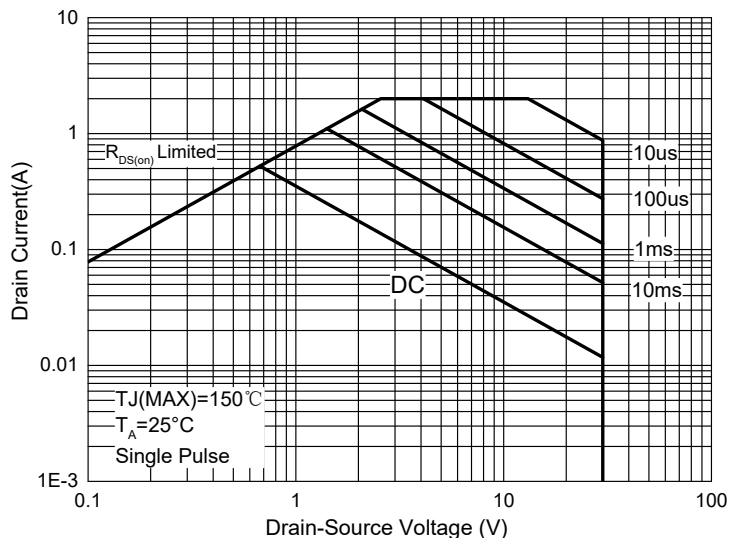
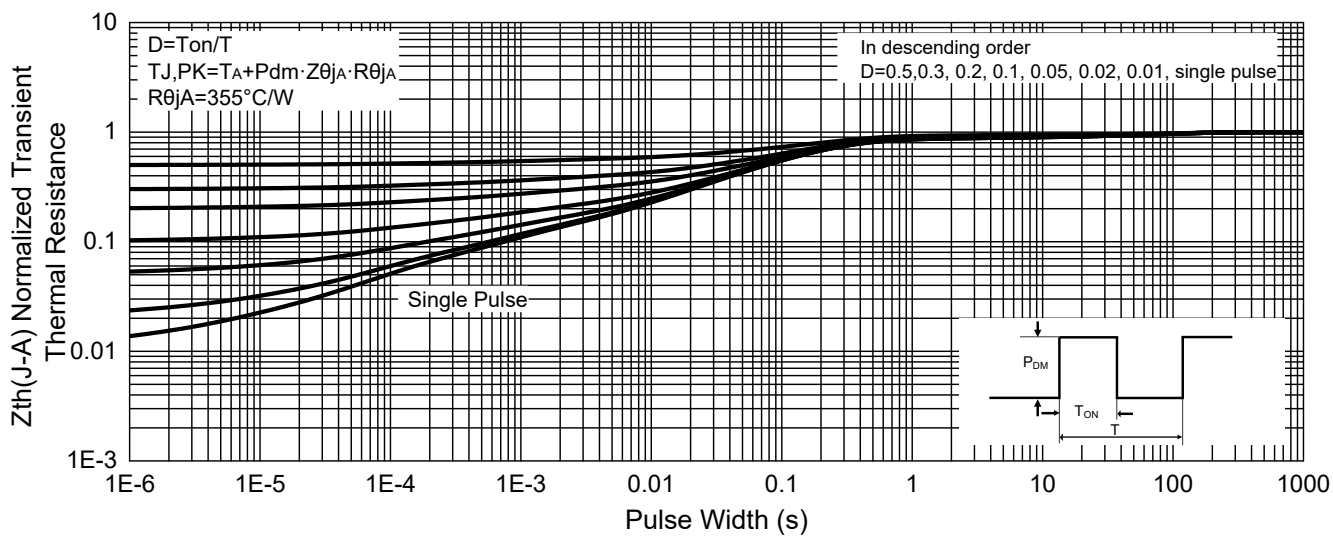


Fig. 13 - Normalized Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:3Kpcs/Reel
Part Number-T8PQ2	Tape&Reel:8Kpcs/Reel

For packaging details, go to our website at <https://www.mccsemi.com/pdf/ProductPackaging/SOT-563%20Package.pdf>

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