

Features

- High Density Cell Design For Low $R_{DS(ON)}$
- Voltage Controlled Small Signal Switch
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

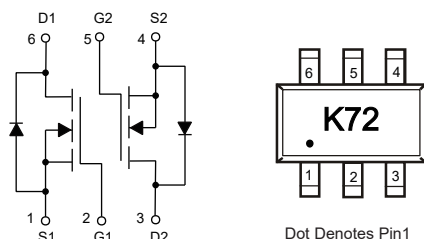
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 415°C/W Junction to Ambient (Steady-State) (Note2)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	340	mA
		215	
	$T_A=25^\circ\text{C}$		
	$T_A=100^\circ\text{C}$		
Pulsed Drain Current (Note3)	I_{DM}	1.36	A
Total Power Dissipation (Note4)	P_D	300	mW

Note:

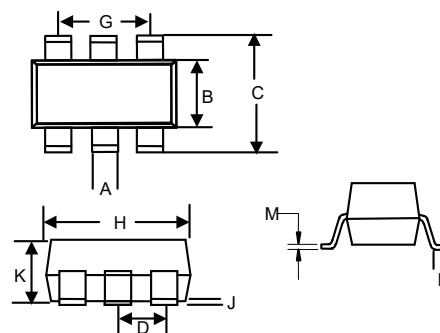
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ\text{C}$. The Power dissipation P_{DSM} is based on $R_{\theta JA} t \leq 10\text{s}$ and the maximum allowed junction temperature of 150°C. The value in any given application depends on the user's specific board design.
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



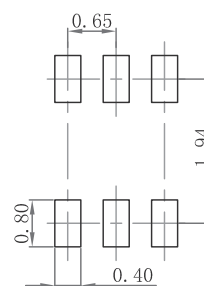
DUAL N-CHANNEL MOSFET

SOT-363



DIMENSIONS					
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-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±10	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V			80	
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	1.5	2.5	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =300mA		1.1	2.5	Ω
		V _{GS} =4.5V, I _D =200mA		1.3	3	
Forward Transconductance	g _{fs}	V _{DS} =10V, I _D =200mA	80			ms
Gate Resistance	R _g	F=1 MHz, Open drain		4.1		Ω
Diode Characteristics						
Continuous Body Diode Current	I _S				115	mA
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =115mA	0.55		1.2	V
Reverse Recovery Time	t _{rr}	I _F =0.5A, dI _F /dt=100A/μs		9.4		ns
Reverse Recovery Charge	Q _{rr}			3.1		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1MHz		25.2		pF
Output Capacitance	C _{oss}			3.5		
Reverse Transfer Capacitance	C _{rss}			2.2		
Total Gate Charge	Q _g	V _{DS} =25V, V _{GS} =10V, I _D =0.5A		1.1		nC
Gate-Source Charge	Q _{gs}			0.19		
Gate-Drain Charge	Q _{gd}			0.25		
Turn-On Delay Time	t _{d(on)}	V _{DD} =25V, V _{GEN} =10V, R _{GEN} =25Ω, I _{DS} =500mA		2.3		ns
Turn-On Rise Time	t _r			2.7		
Turn-Off Delay Time	t _{d(off)}			6.3		
Turn-Off Fall Time	t _f			3		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

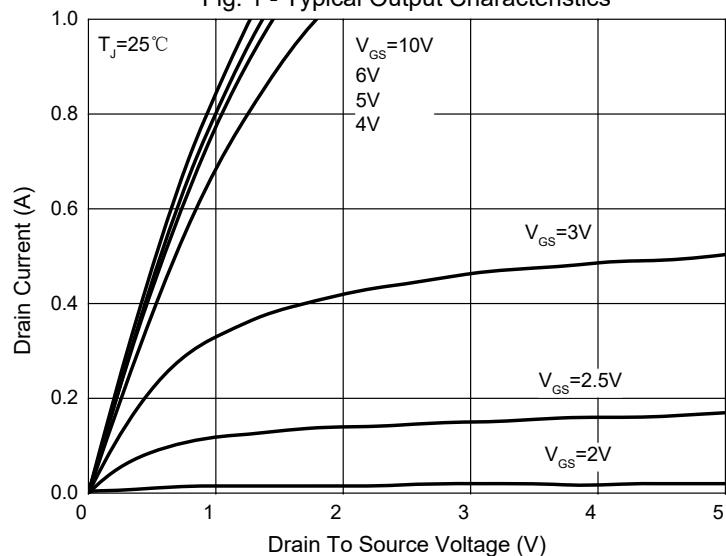


Fig. 2 - Transfer Characteristics

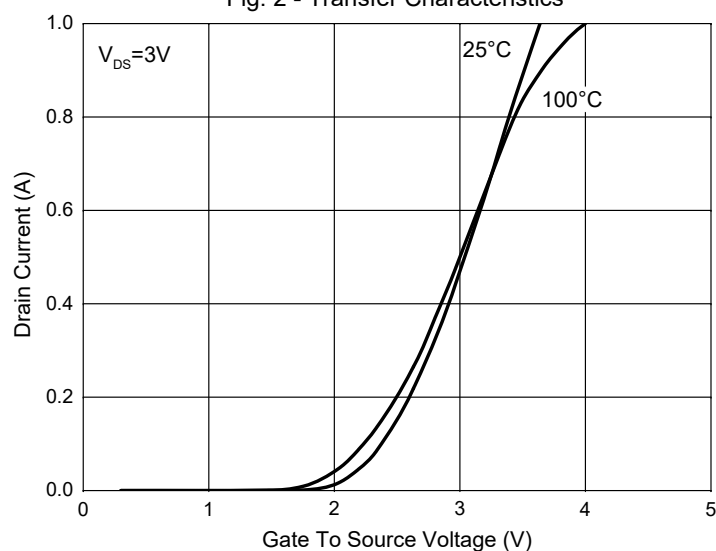


Fig. 3 - $R_{DS(ON)} - I_D$

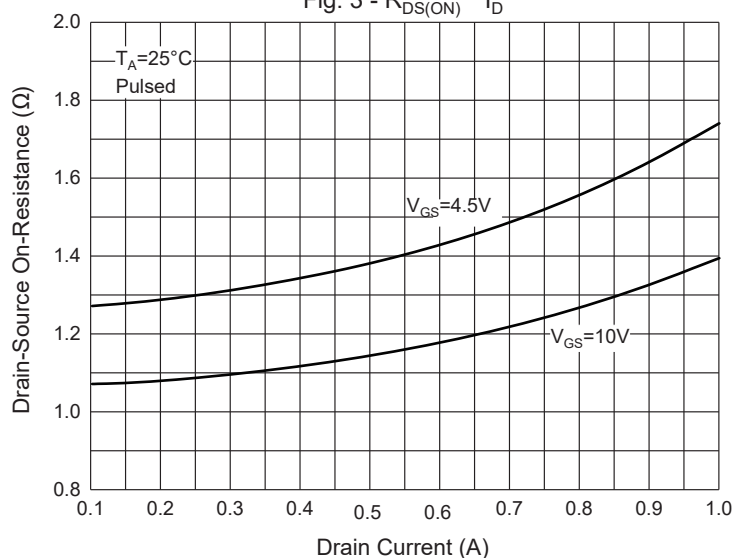


Fig. 4 - $R_{DS(ON)} - V_{GS}$

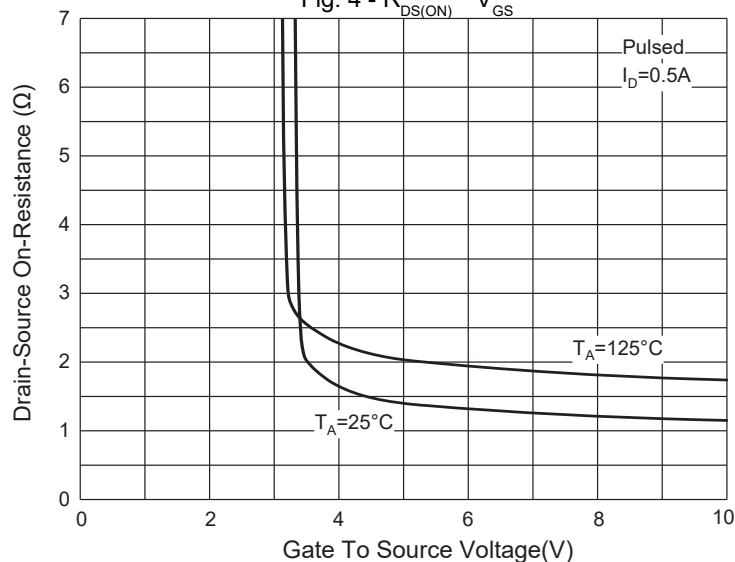


Fig. 5 - $I_S - V_{SD}$

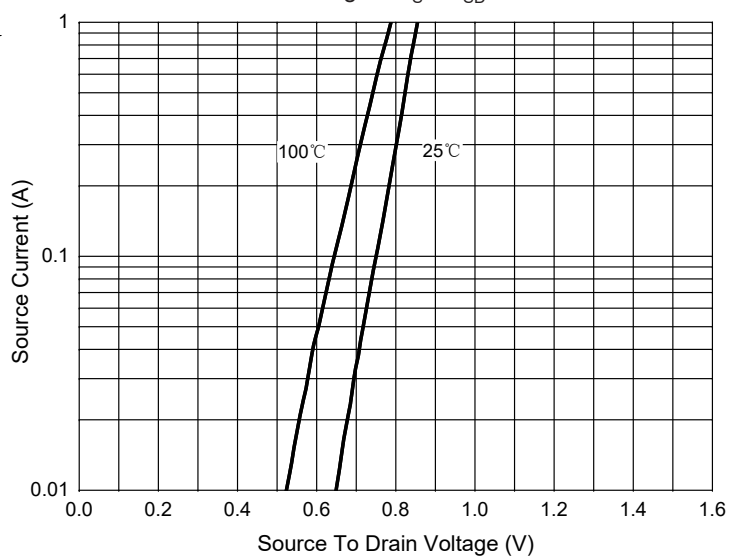
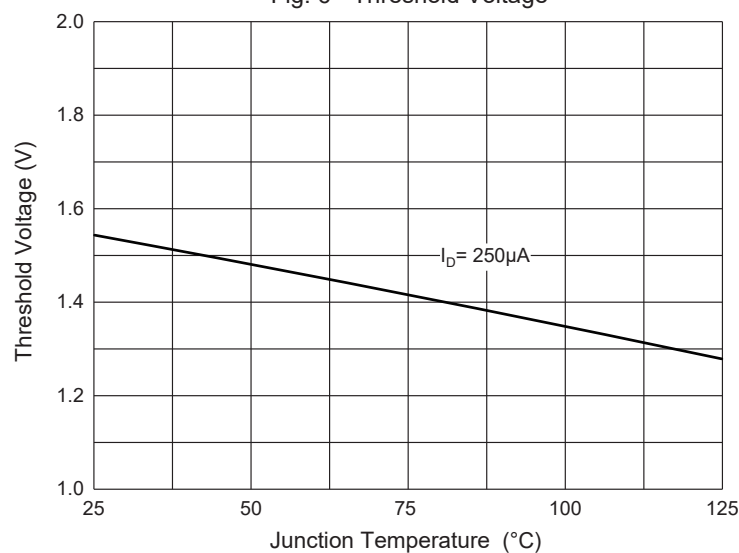


Fig. 6 - Threshold Voltage



Curve Characteristics

Fig.7-NormalizedOnResistanceCharacteristics

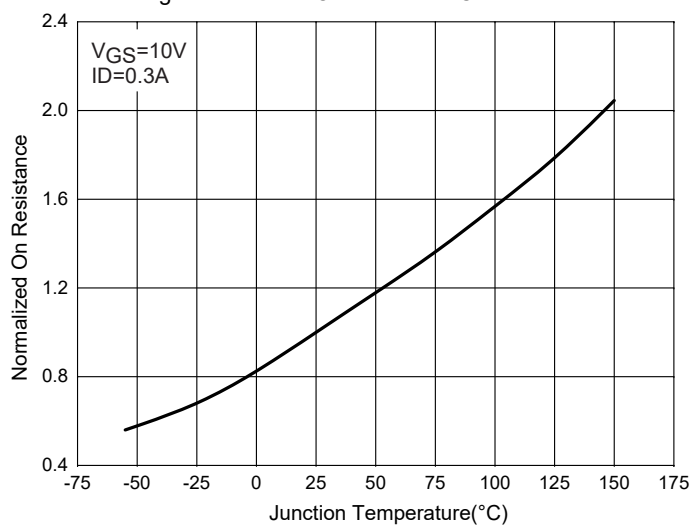


Fig. 8 - GateCharge

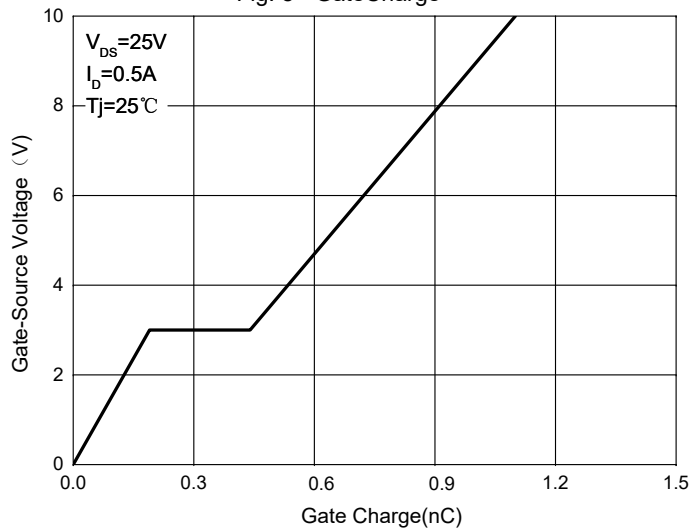


Fig. 9 - Capacitance Characteristics

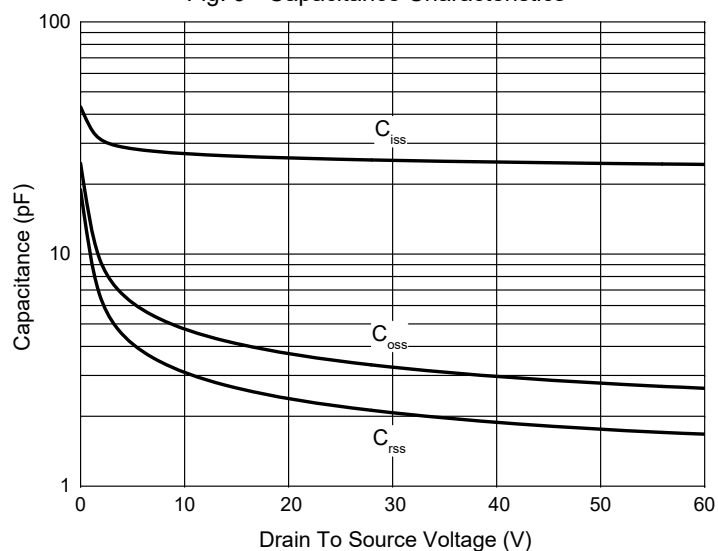


Fig. 10 - Current dissipation

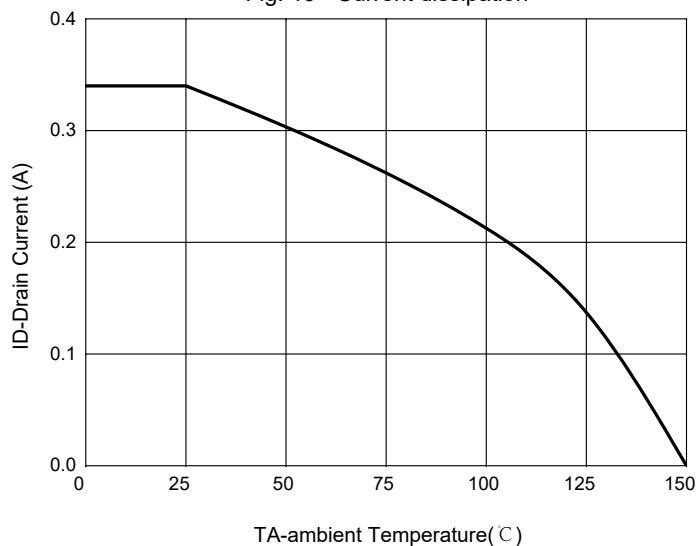
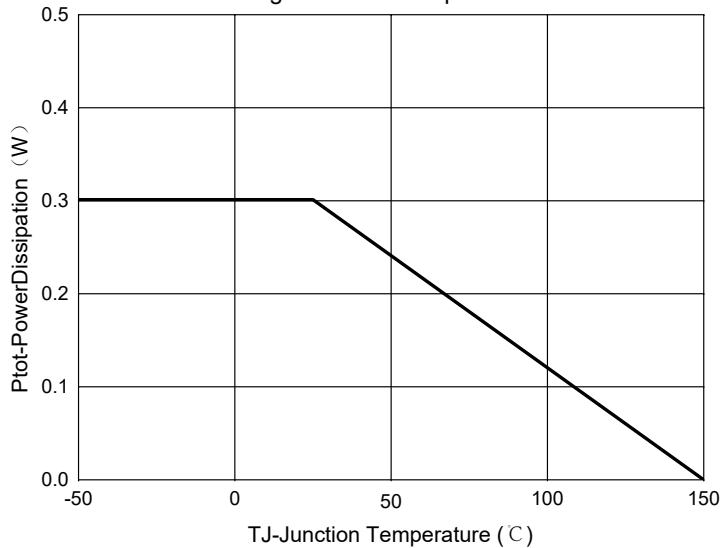


Fig.11-PowerDissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

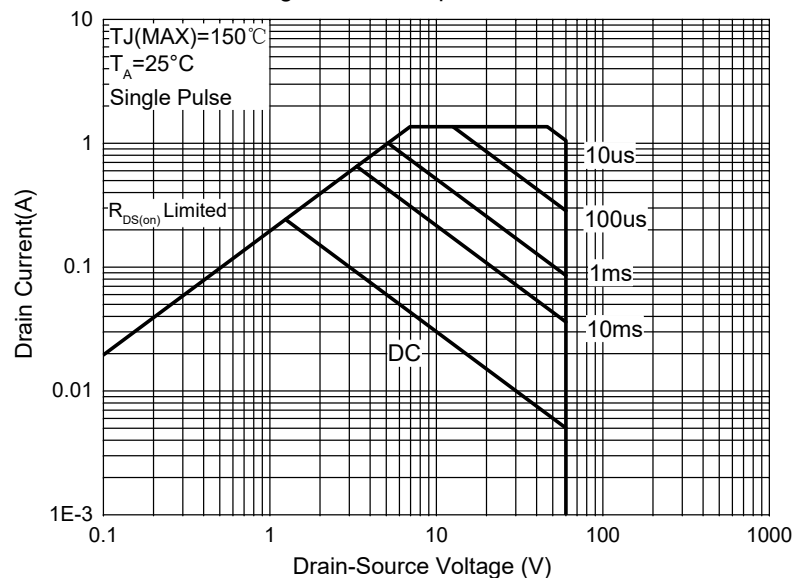
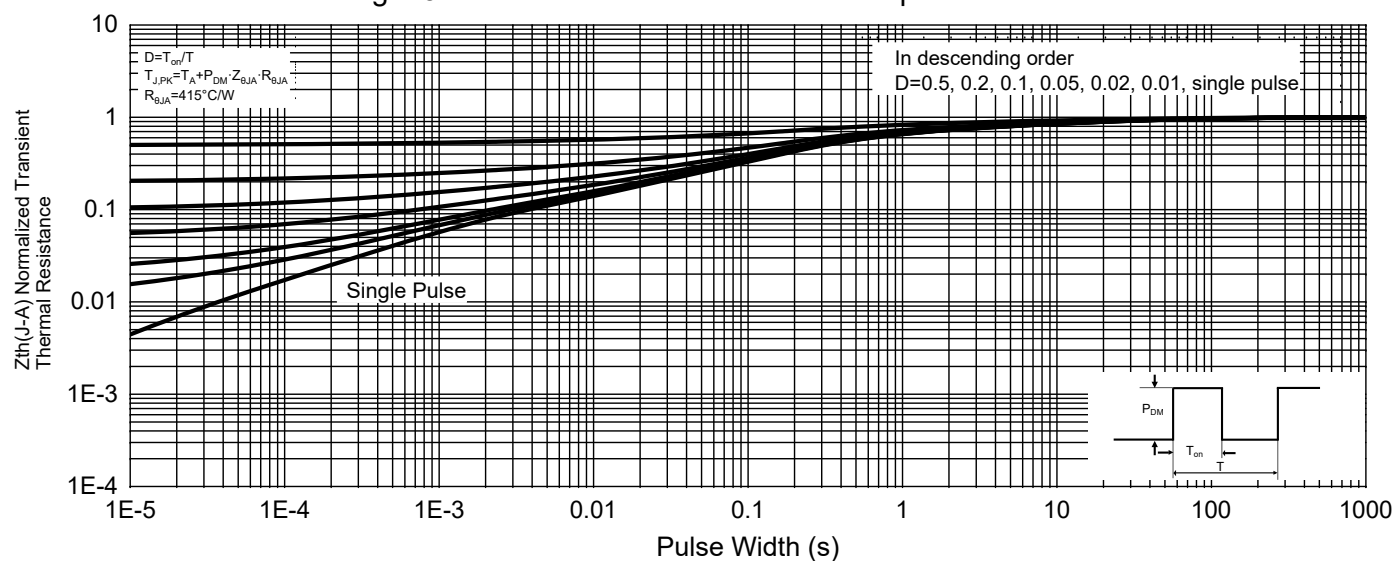


Fig. 13 -Normalized Transient Thermal Impedance



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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