

## Features

- AEC-Q101 Qualified
- ESD protected: 1500V
- High Dense Cell Design For Extremely 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

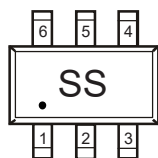
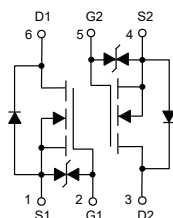
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Thermal Resistance: 395°C/W Junction to Ambient (Note 2)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	50	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current	$I_D$	$T_A=25^\circ\text{C}$	0.22
		$T_A=100^\circ\text{C}$	0.14
Pulsed Drain Current (Note 3)	$I_{DM}$	0.88	A
Total Power Dissipation (Note 4)	$P_D$	0.32	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 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.

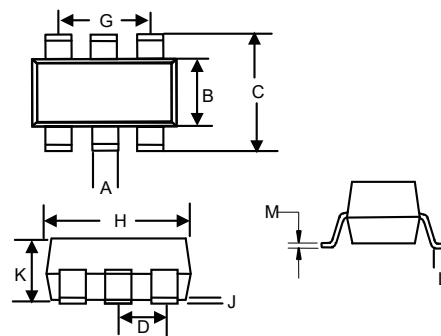
## Internal Structure and Marking Code



Dot denotes Pin1

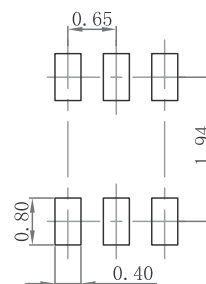
# Dual N-Channel MOSFET

## 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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	50			V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.8	1.0	1.45	V
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$			$\pm 10$	$\mu A$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=48V, V_{GS}=0V$			1	$\mu A$
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=0.5A$		1.1	1.6	$\Omega$
		$V_{GS}=4.5V, I_D=0.1A$		1.2	2.5	
		$V_{GS}=2.5V, I_D=0.1A$		1.8	3.8	
Forward Transconductance	$g_{FS}$	$V_{DS}=10V, I_D=0.1A$		325		mS
Gate Resistance	$R_g$	f=1 MHz, Open drain		84		$\Omega$
<b>Diode Characteristics</b>						
Continuous Body Diode Current	$I_S$				0.22	A
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=0.5A$			1.3	V
Reverse Recovery Time	$t_{rr}$	$I_F=0.5A, dI_F/dt=100A/\mu s$		9.4		ns
Reverse Recovery Charge	$Q_{rr}$			2.2		nC
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=25V, V_{GS}=0V, f=1MHz$		29.5		$\mu F$
Output Capacitance	$C_{oss}$			4.4		
Reverse Transfer Capacitance	$C_{rss}$			3		
Total Gate Charge	$Q_g$	$V_{DS}=25V, V_{GS}=10V, I_D=0.5A$		1.2		nC
Gate-Source Charge	$Q_{gs}$			0.32		
Gate-Drain Charge	$Q_{gd}$			0.16		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=25V, V_{GS}=10V, R_{GEN}=25\Omega, I_D=0.5A$		3.3		ns
Turn-On Rise Time	$t_r$			3		
Turn-Off Delay Time	$t_{d(off)}$			12		
Turn-Off Fall Time	$t_f$			9		

**Curve Characteristics**

Fig. 1 - Typical Output Characteristics

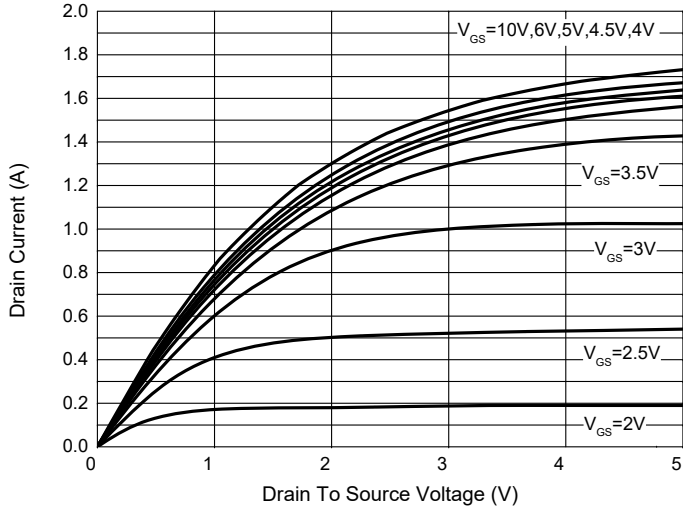


Fig. 2 - Transfer Characteristics

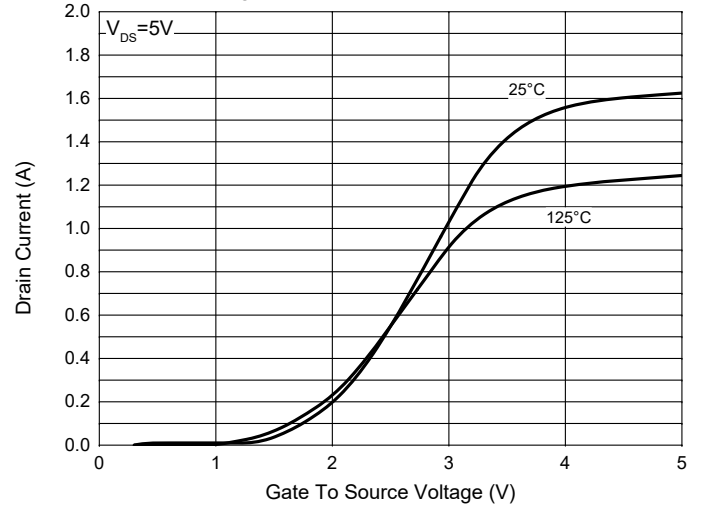


Fig. 3 -  $R_{DS(ON)}$ — $V_{GS}$

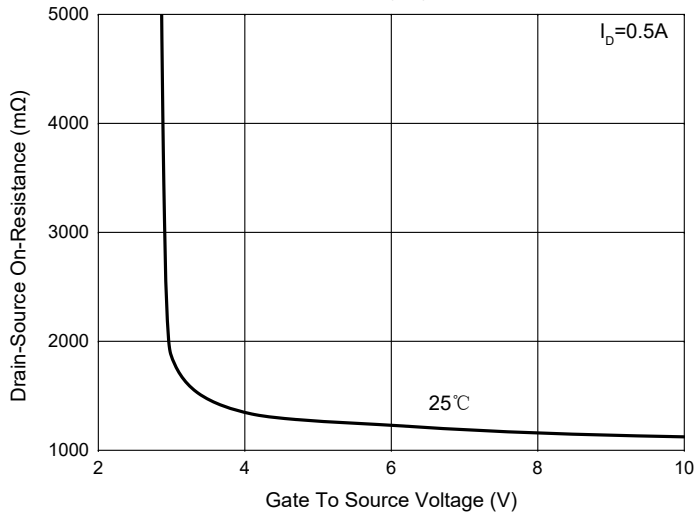


Fig. 4 -  $R_{DS(ON)}$ — $I_D$

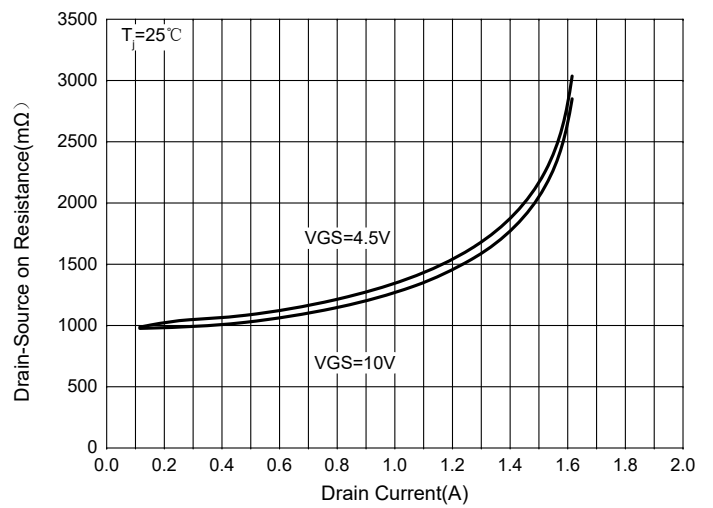


Fig. 5 - Capacitance Characteristics

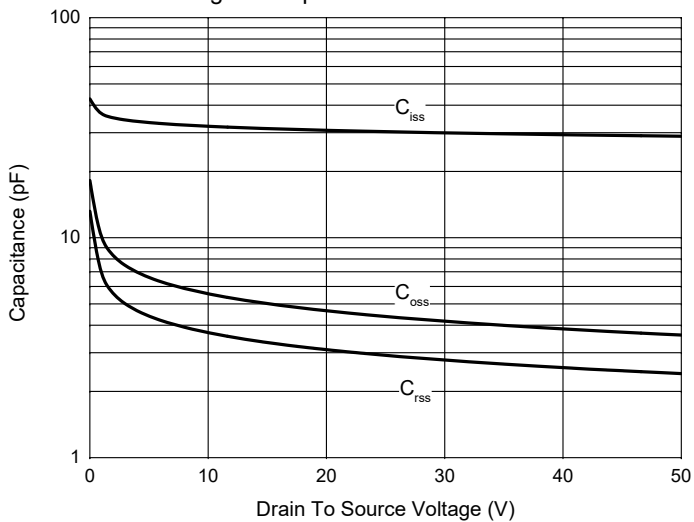
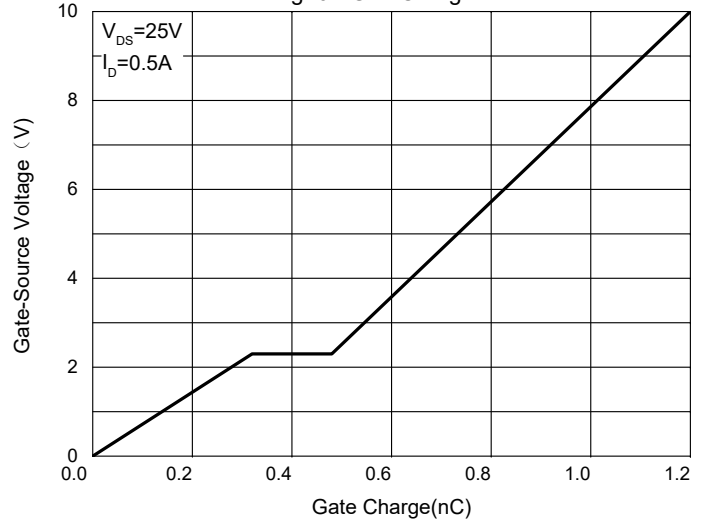


Fig. 6 - GateCharge



**Curve Characteristics**

Fig. 7 - Normalized Threshold Voltage

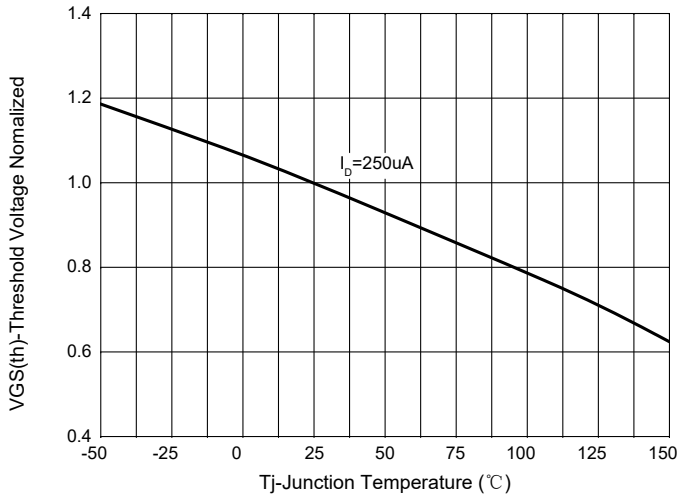


Fig.8-Normalized On Resistance Characteristics

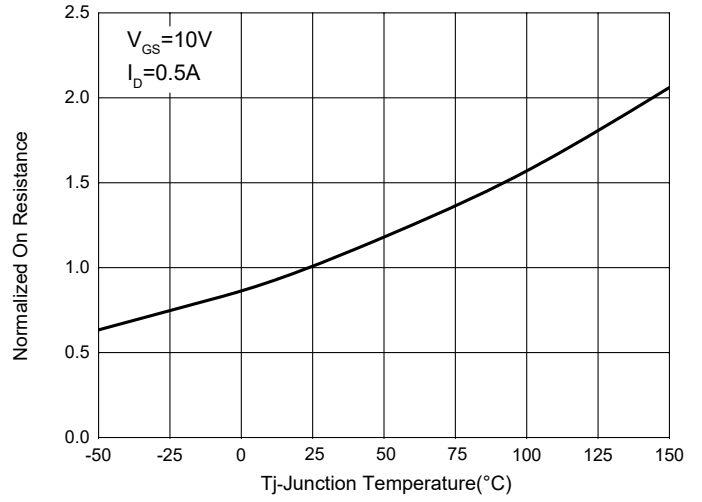


Fig.9 -  $I_S - V_{SD}$

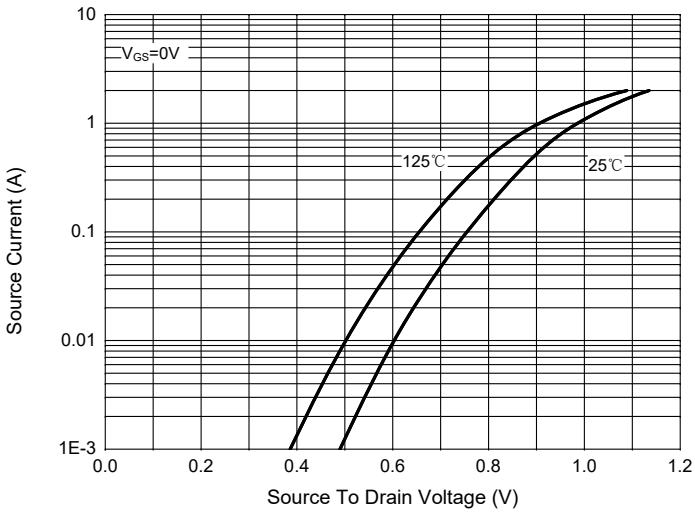


Fig. 10 - Drain Current

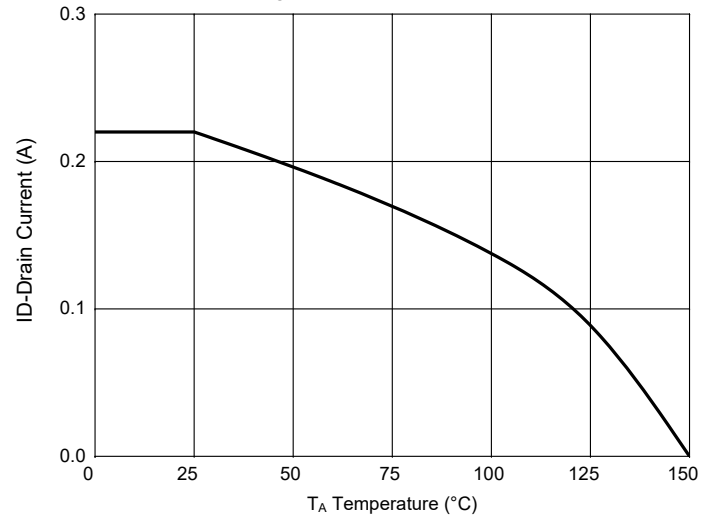
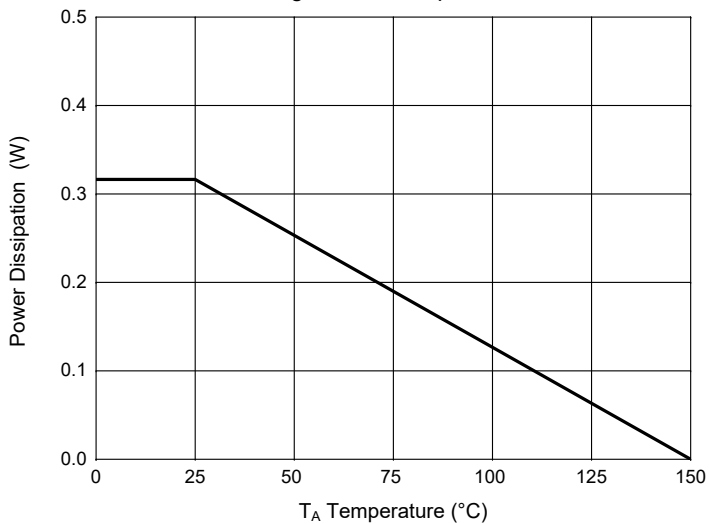


Fig.11-PD Dissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

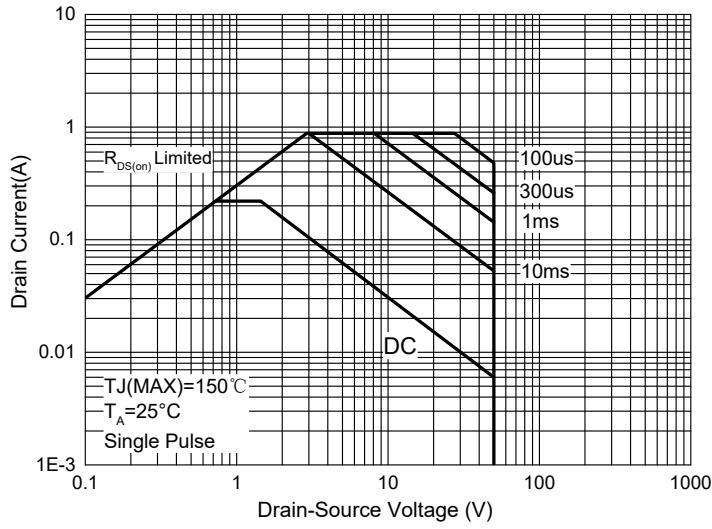
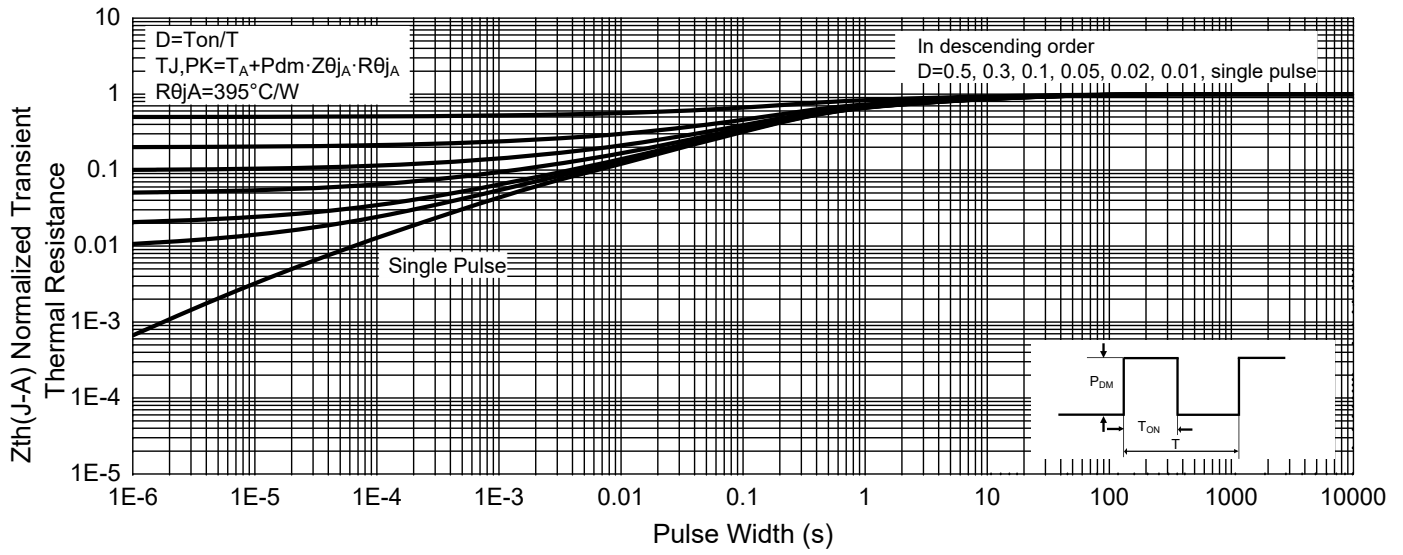


Fig. 13 - Normalized Transient Thermal Impedance



## Ordering Information

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

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