

Features

- AEC-Q101 Qualified
- ESD Protected up to 2KV(HBM)
- 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

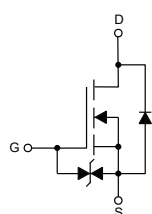
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Thermal Resistance: 436°C/W Junction to Ambient (Note 2)

Parameter	Symbol	Rating	Unit
Drain -source Voltage	V_{DS}	30	V
Gate -Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	$T_A=25^\circ\text{C}$	I_D	mA
	$T_A=100^\circ\text{C}$		
Pulsed Drain Current (Note 3)	I_{DM}	460	mA
Power Dissipation (Note 4)	P_D	0.29	W

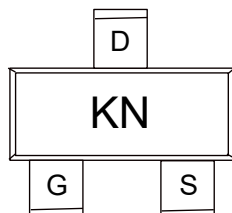
Note:

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 1in² 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

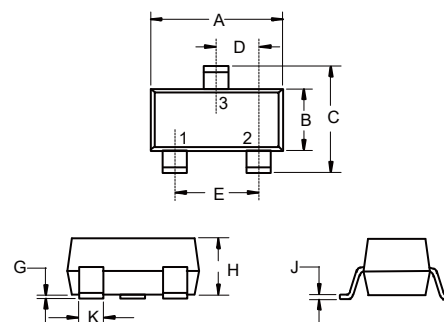


1. GATE
2. SOURCE
3. DRAIN



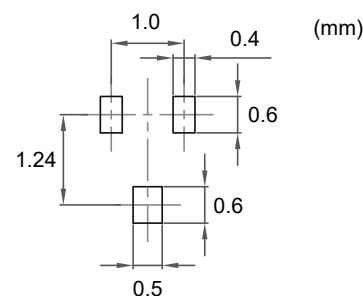
N-Channel MOSFET

SOT-523



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.059	0.067	1.50	1.70	
B	0.030	0.033	0.75	0.85	
C	0.057	0.069	1.45	1.75	
D	0.020		0.50		TYP.
E	0.035	0.043	0.90	1.10	
G	0.000	0.004	0.00	0.10	
H	0.024	0.031	0.60	0.80	
J	0.004	0.008	0.10	0.20	
K	0.006	0.014	0.15	0.35	

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 =10μA	30			V
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =100μA	0.8	1	1.5	V
Gate-Body Leakage Current	I _{GSS}	V _{GS} =± 20V, V _{DS} =0V			±10	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V, T _J =50°C			100	nA
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =100mA		1.6	4	Ω
		V _{GS} =4.5V, I _D =50mA		2	5	
		V _{GS} =2.5V, I _D =10mA		4	7	
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =200mA		150		mS
Gate Resistance	R _g	f=1 MHz, Open drain		255		Ω
Diode Characteristics						
Continuous Body Diode Current	I _S				0.15	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =100mA			1.3	V
Reverse Recovery Time	t _{rr}	I _F =0.3A, dI _F /dt=100A/μs		11		ns
Reverse Recovery Charge	Q _{rr}			3		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =15V,V _{GS} =0V,f=1MHz		16		pF
Output Capacitance	C _{oss}			5.4		
Reverse Transfer Capacitance	C _{rss}			3.3		
Total Gate Charge	Q _g	V _{DS} =15V,V _{GS} =10V,I _D =0.3A		0.78		nC
Gate-Source Charge	Q _{gs}			0.13		
Gate-Drain Charge	Q _{gd}			0.14		
Turn-On Delay Time	t _{d(on)}	V _{DD} =15V,V _{GS} =10V, R _G =3.9Ω, I _D =0.3A		2.4		ns
Turn-On Rise Time	t _r			2.7		
Turn-Off Delay Time	t _{d(off)}			6		
Turn-Off Fall Time	t _f			10		

Curve Characteristics

Fig.1 - Typical Output Characteristics

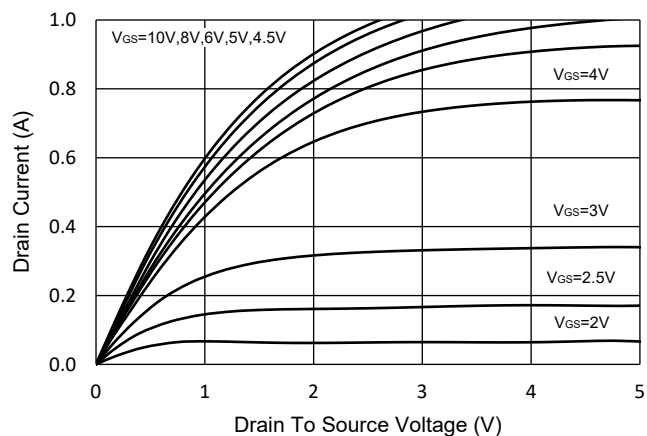


Fig.2 - Transfer Characteristic

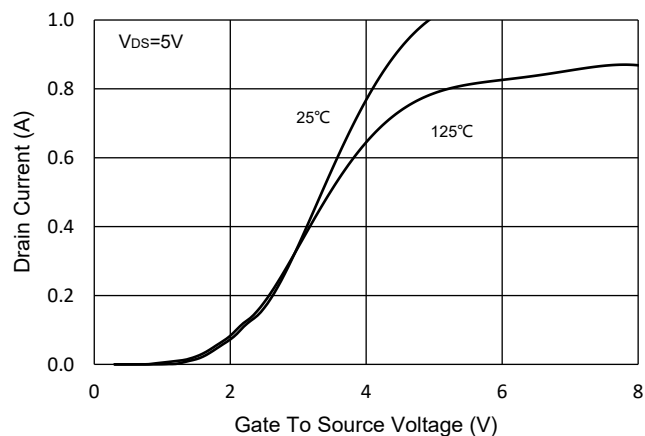


Fig.3 - $R_{DS(ON)}$ - V_{GS}

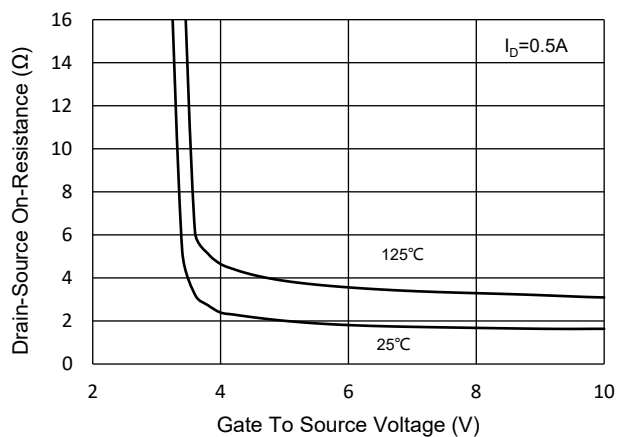


Fig.4 - $R_{DS(ON)}$ - I_D

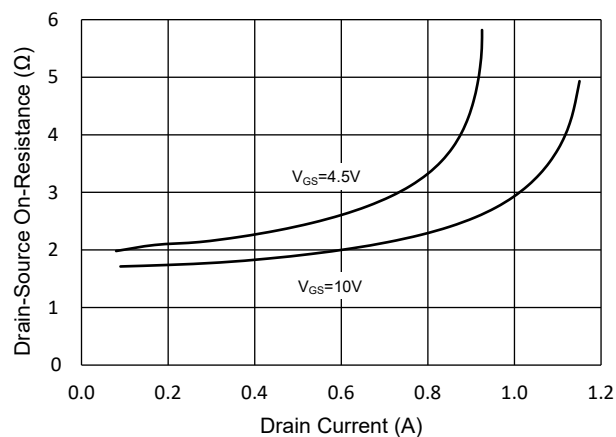


Fig.5 - Capacitance Characteristics

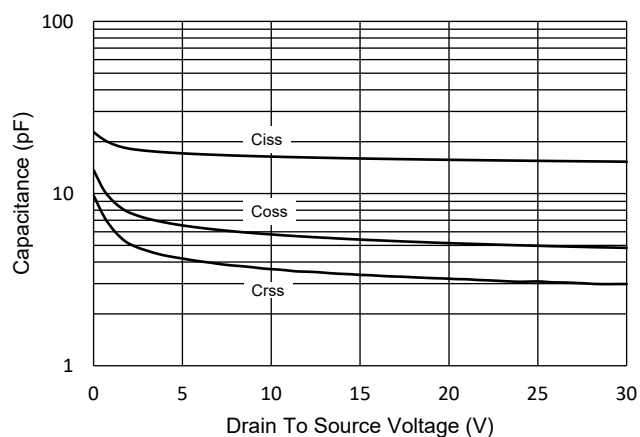
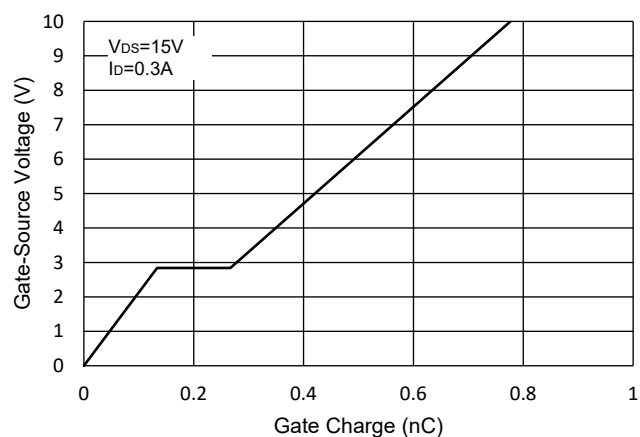


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

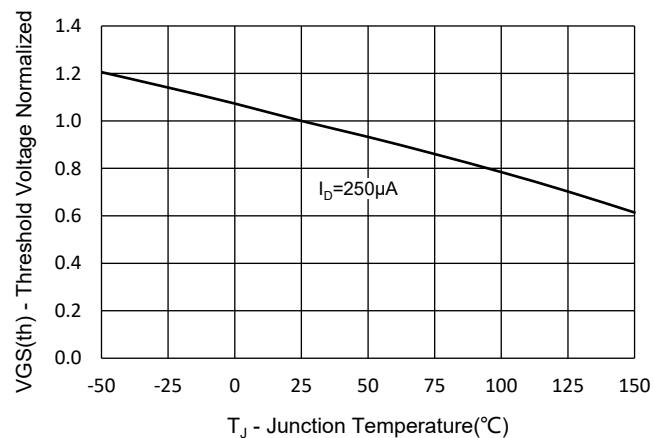


Fig.8 - Normalized On Resistance Characteristics

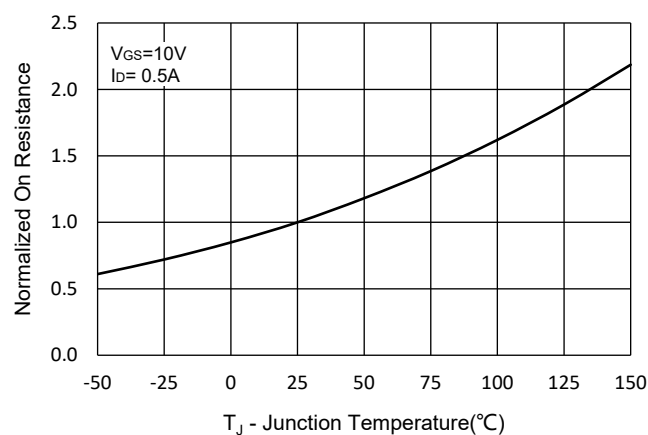


Fig.9 - $I_S - V_{SD}$

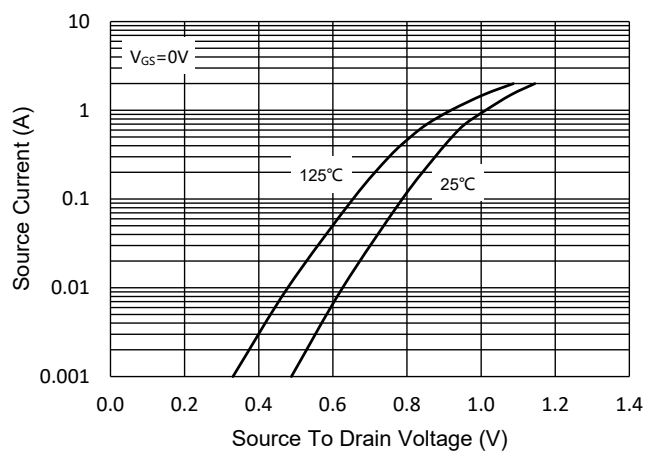


Fig.10 - Drain Current

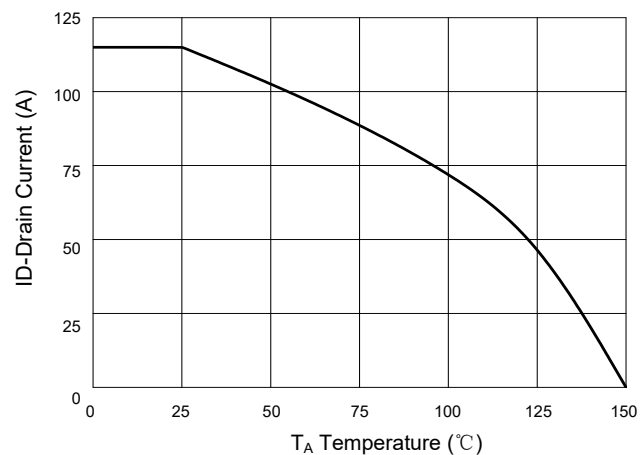
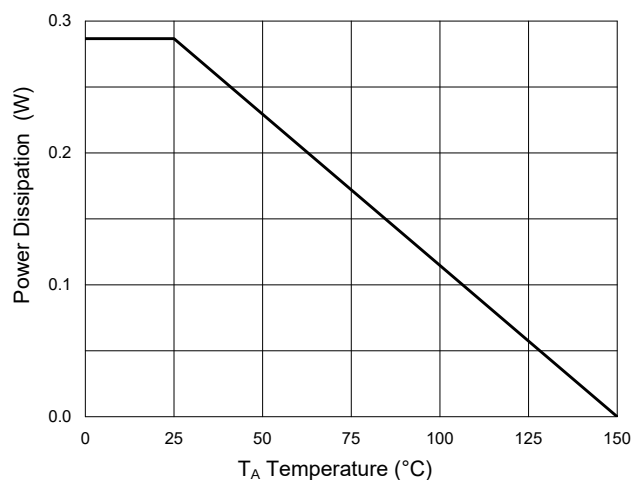


Fig.11 - PD Dissipation



Curve Characteristics

Fig.12 - Safe Operation Area

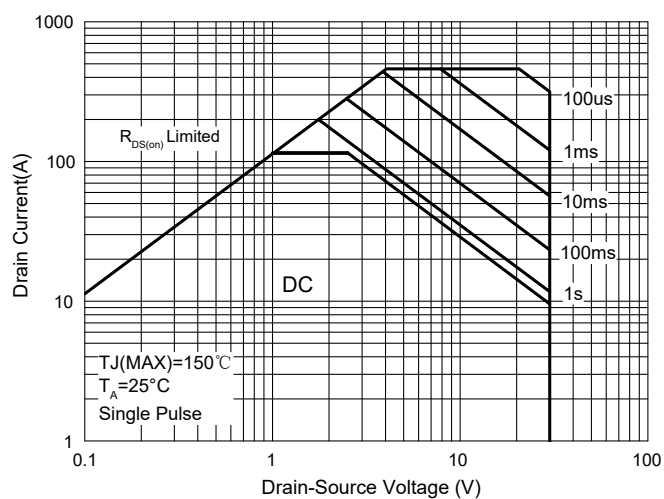
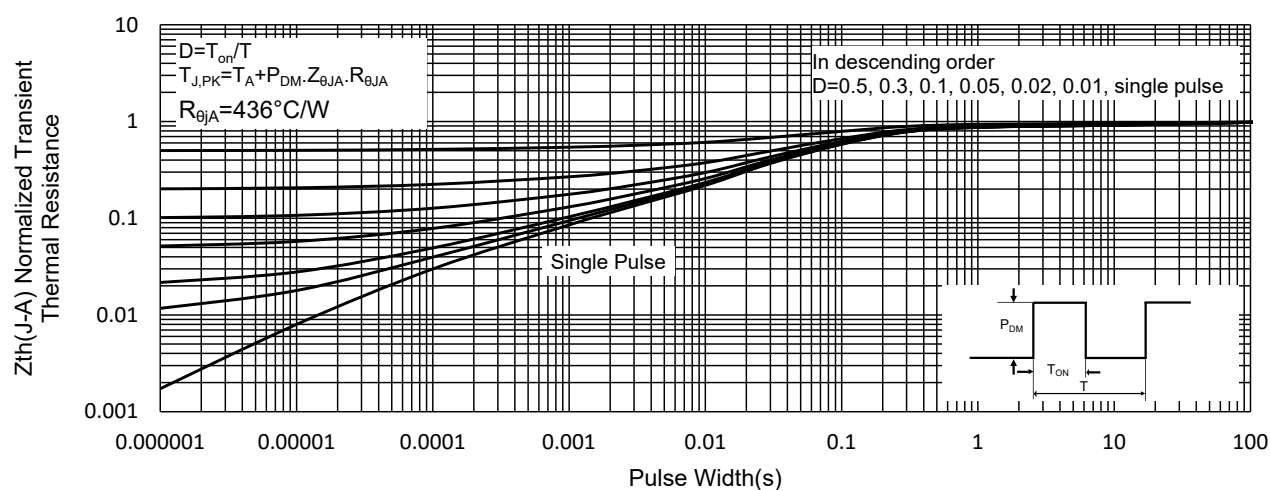


Fig.13 - Normalized Transient Thermal Impedance



Ordering Information

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

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