

Features

- Trench LV MOSFET Technology
- High Density Cell Design For Ultra Low $R_{DS(on)}$
- ESD Protect up to 1.2KV (HBM)
- Moisture Sensitivity Level 1
- Halogen Free."Green"Device^(Note1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

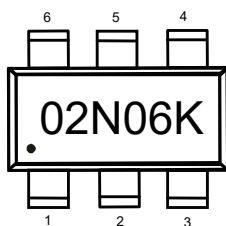
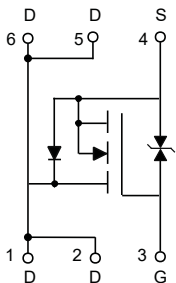
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 78°C/W Junction to Ambient ^(Note 2)

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	V_{DS}	60	V	
Gate-Source Voltage	V_{GS}	±20	V	
Continuous Drain Current	I_D	$T_A=25^\circ\text{C}$	2.5	A
		$T_A=100^\circ\text{C}$	1.5	
Pulsed Drain Current ^(Note 3)	I_{DM}	10	A	
Total Power Dissipation ^(Note 4)	P_D	1.6	W	

Note:

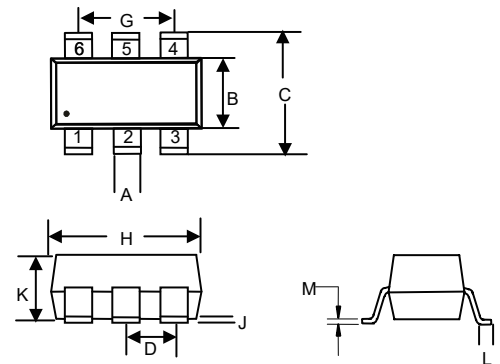
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ\text{C}$.
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



N-CHANNEL MOSFET

SOT23-6L



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.012	0.020	0.30	0.50	
B	0.051	0.070	1.30	1.80	
C	0.087	0.126	2.20	3.20	
D	0.037		0.95		TYP.
G	0.074		1.90		TYP.
H	0.106	0.122	2.70	3.10	
J	0.002	0.006	0.05	0.15	
K	0.030	0.051	0.75	1.30	
L	0.012	0.024	0.30	0.60	
M	0.003	0.008	0.08	0.22	

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	60			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.1	1.6	2.3	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=2A$		81	105	m Ω
		$V_{GS}=4.5V, I_D=1A$		92	140	
Gate Resistance	R_g	f=1 MHz, Open drain		6.4		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				2.5	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=2A$			1.3	V
Reverse Recovery Time	t_{rr}	$I_F=2A, di/dt=530A/\mu s$		12		ns
Reverse Recovery Charge	Q_{rr}			8		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V, f=1MHz$		338		pF
Output Capacitance	C_{oss}			31		
Reverse Transfer Capacitance	C_{rss}			25		
Total Gate Charge	Q_g	$V_{DS}=30V, V_{GS}=10V, I_D=2A$		6.4		nC
Gate-Source Charge	Q_{gs}			1.1		
Gate-Drain Charge	Q_{gd}			1.3		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=30V, V_{GS}=10V, R_G=6\Omega, I_D=2A$		4.9		ns
Turn-On Rise Time	t_r			3.6		
Turn-Off Delay Time	$t_{d(off)}$			16		
Turn-Off Fall Time	t_f			4.4		

Curve Characteristics

Fig.1 - Typical Output Characteristics

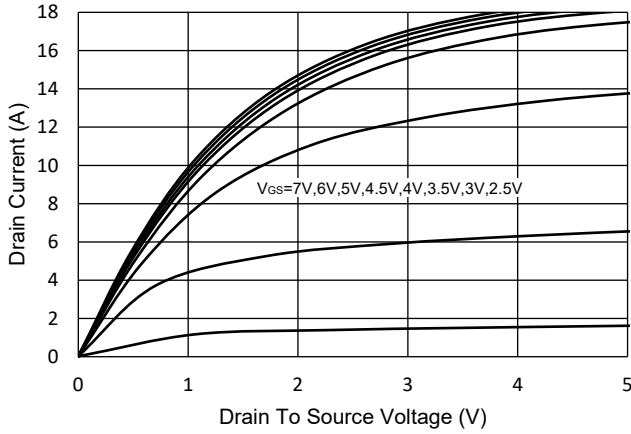


Fig. 2 - Transfer Characteristics

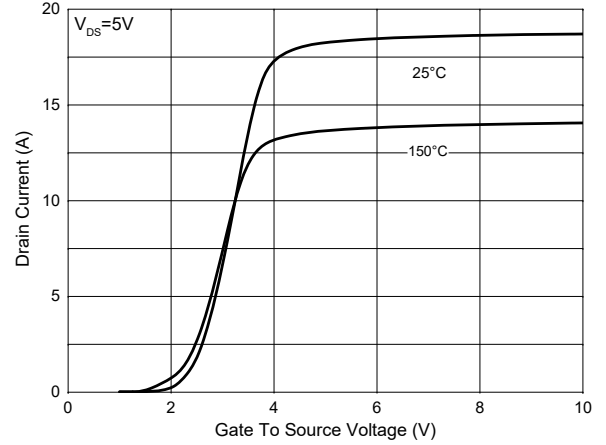


Fig.3 - $R_{DS(ON)}$ - V_{GS}

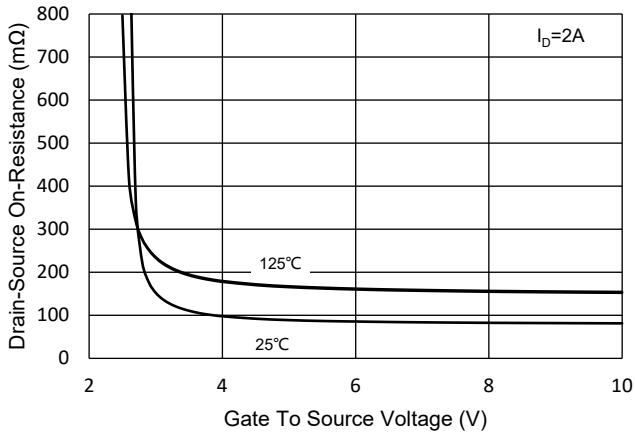


Fig. 4 - $R_{DS(ON)}$ - I_D

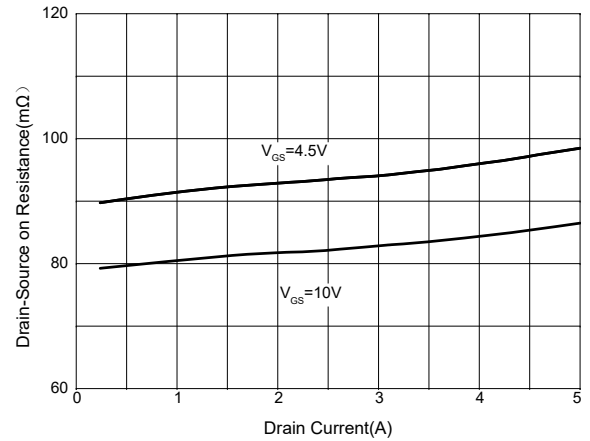


Fig.5 - Capacitance Characteristics

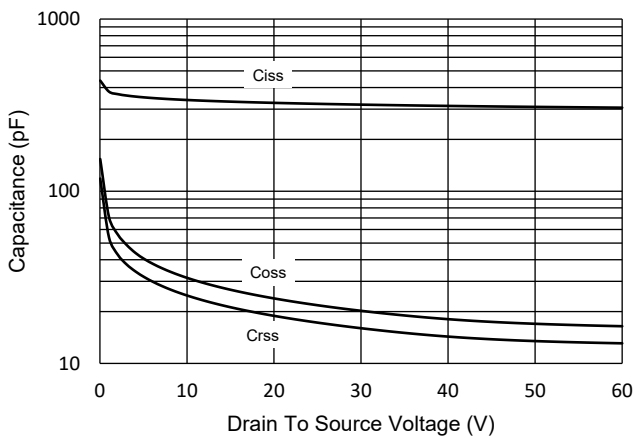
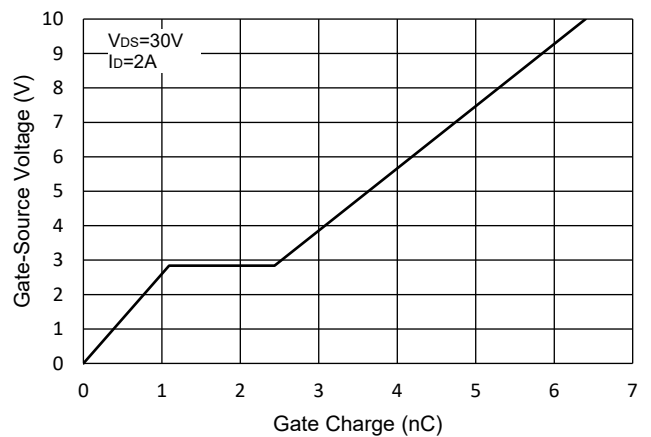


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

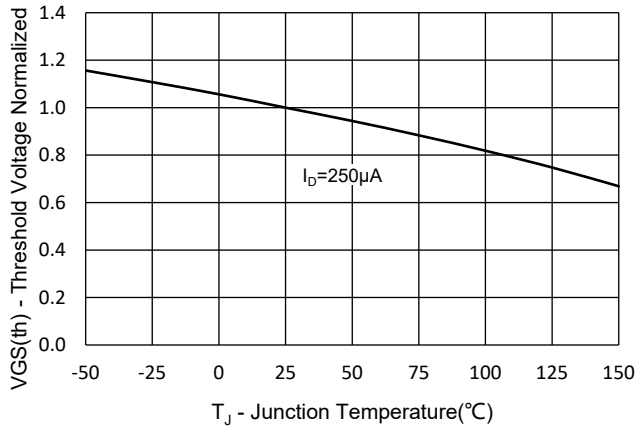


Fig.8 - Normalized On Resistance Characteristics

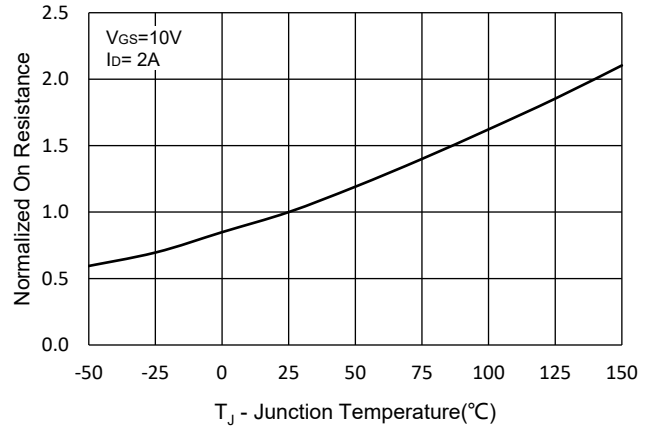


Fig.9 - $I_S - V_{SD}$

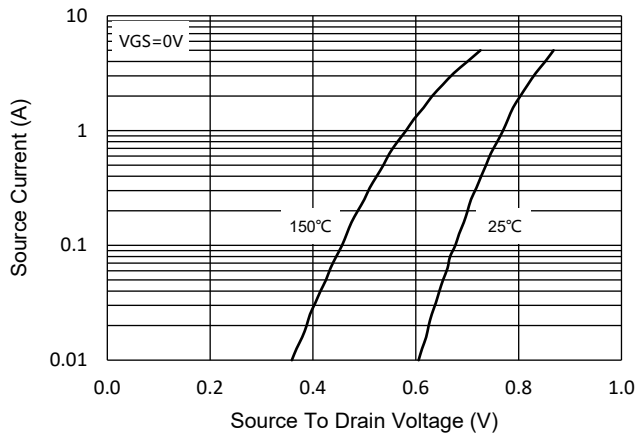


Fig.10 - Drain Current

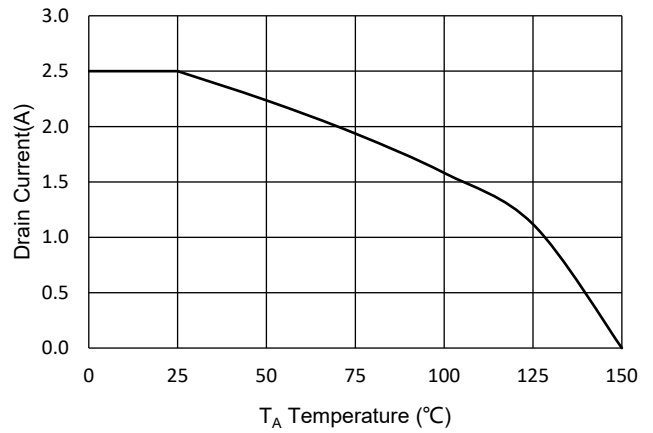
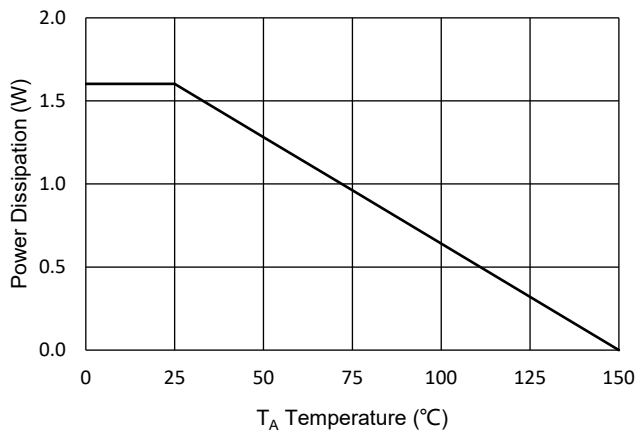


Fig.11 - PD Dissipation



Curve Characteristics

Fig.12 - Safe Operation Area

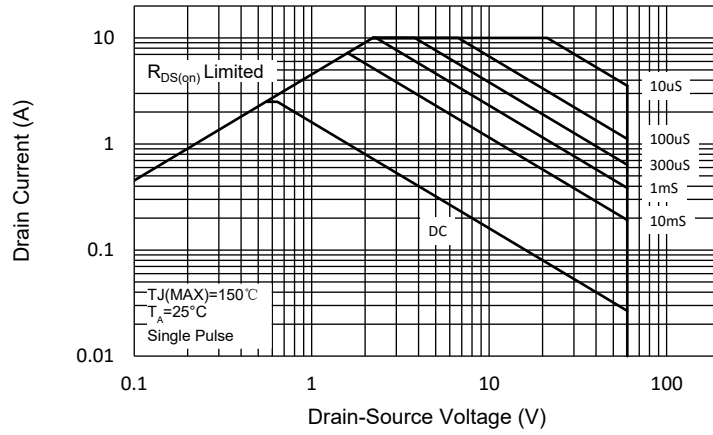
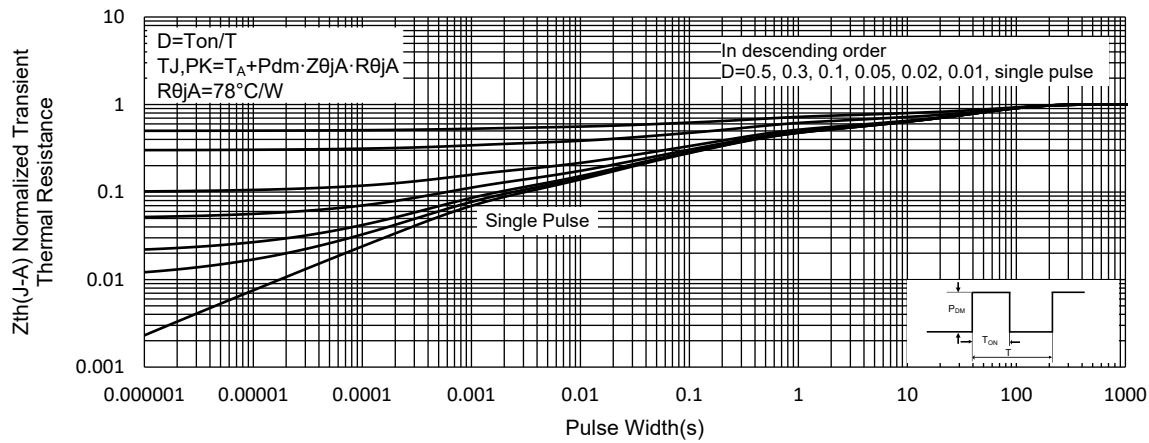


Fig.13 - Normalized Transient Thermal Impedance



Ordering Information

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

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