

Features

- Trench LV MOSFET technology
- 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

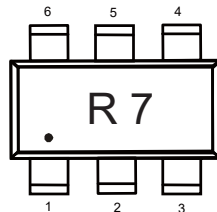
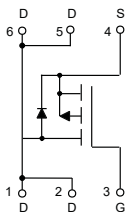
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 78°C/W Junction to Ambient (Note 2)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	$T_A=25^\circ\text{C}$	-4.1
		$T_A=70^\circ\text{C}$	-3.2
Pulsed Drain Current (Note 3)	I_{DM}	-12	A
Total Power Dissipation (Note 4)	P_D	1.6	W

Note:

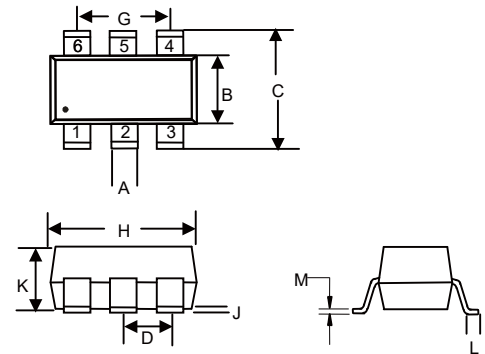
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz Copper, in a still air environment with $T_A=25^\circ\text{C}$.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



P-CHANNEL MOSFET

SOT23-6L



DIM	INCHES		MM		NOTE
	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	2.50	3.10	
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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-30V, V_{GS}=0V$			-1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1	-1.4	-3	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-4.1A$		39	50	m Ω
		$V_{GS}=-4.5V, I_D=-3A$		54	70	
Gate Resistance	R_g	f=1MHz, Open Drain		10		Ω
Forward tranconductance	g_{FS}	$V_{DS}=-5V, I_D=-4A$		11		S
Diode Characteristics						
Continuous Body Diode Current	I_S				-4.1	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=-4.1A$			-1.2	V
Reverse Recovery Time	t_{rr}	$I_S=-2A, di/dt=100A/\mu s$		24		ns
Reverse Recovery Charge	Q_{rr}			4.3		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=-15V, V_{GS}=0V, f=1MHz$		581		pF
Output Capacitance	C_{oss}			72		
Reverse Transfer Capacitance	C_{rss}			62		
Total Gate Charge	Q_g	$V_{DS}=-15V, V_{GS}=-10V, I_D=-2A$		12.7		pF
Gate-Source Charge	Q_{gs}			1.5		
Gate-Drain Charge	Q_{gd}			2		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=-10V, V_{DD}=-15V, R_G=3\Omega, I_D=-2A$		6.3		ns
Turn-On Rise Time	t_r			3.6		
Turn-Off Delay Time	$t_{d(off)}$			23.7		
Turn-Off Fall Time	t_f			9.3		

Curve Characteristics

Fig. 1 Typical Output Characteristics

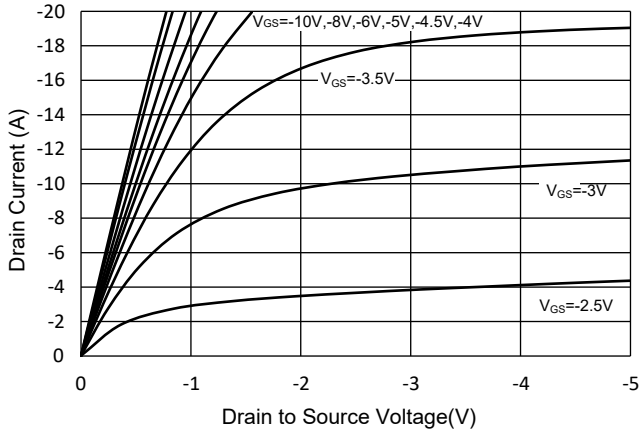


Fig.2 Transfer Characteristic

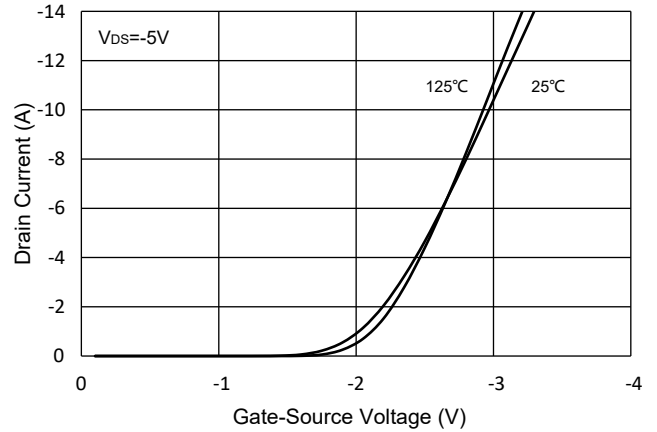


Fig.3 Rds(on)-Vgs

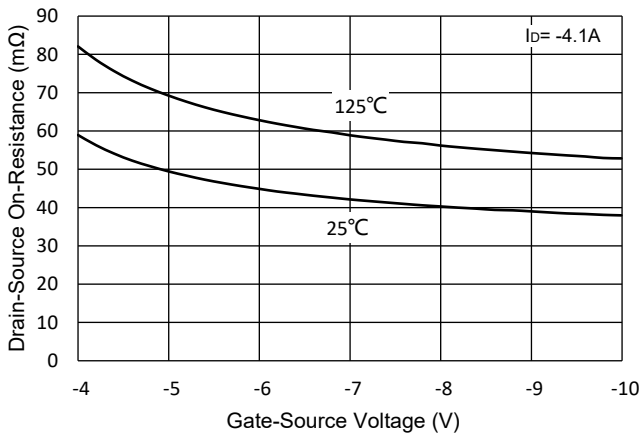


Fig.4 RDS(ON)-ID

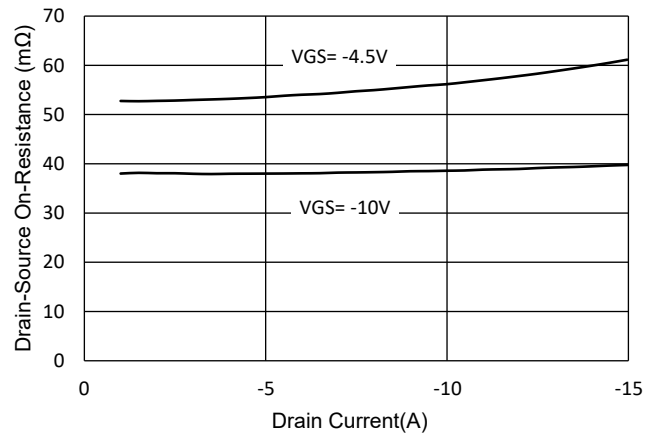


Fig.5 Capacitance Characteristics

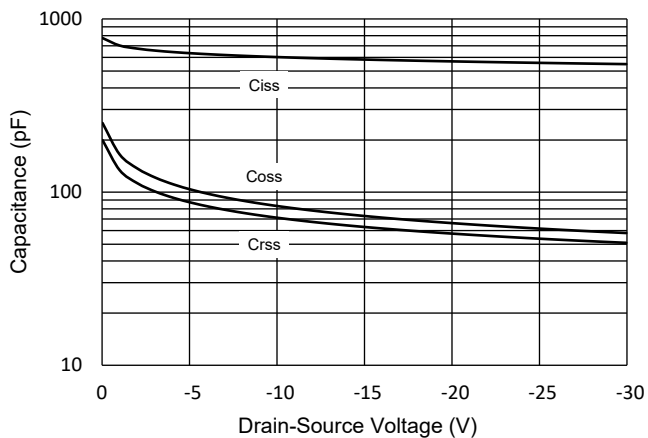
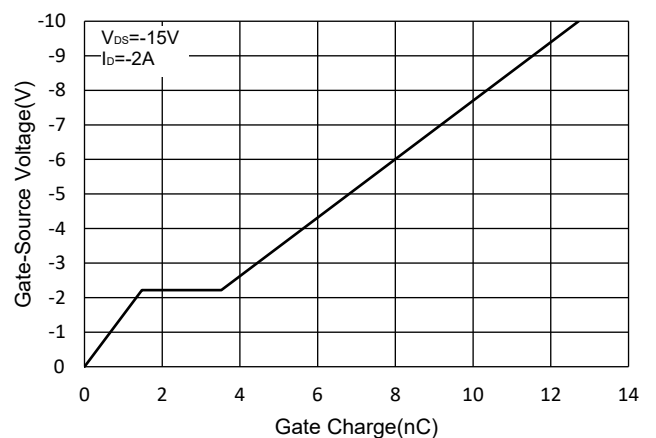


Fig.6 Gate Charge



Curve Characteristics

Fig.7 Normalized Threshold Voltage

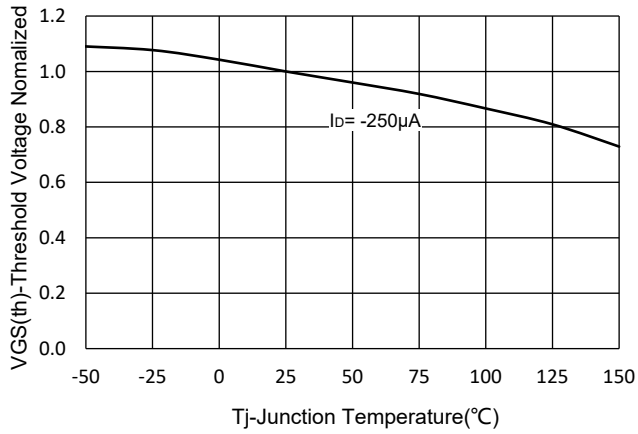


Fig.8 Normalized On Resistance Characteristics

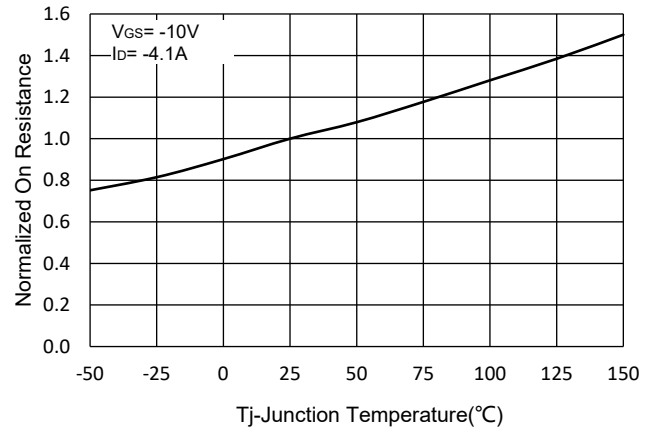


Fig.9 IS-VSD

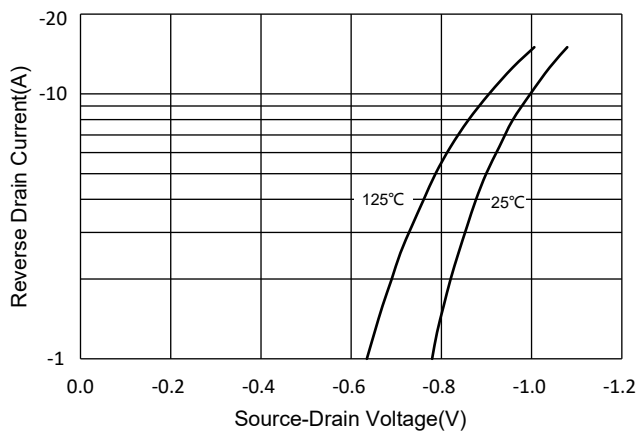


Fig.10 Drain Current

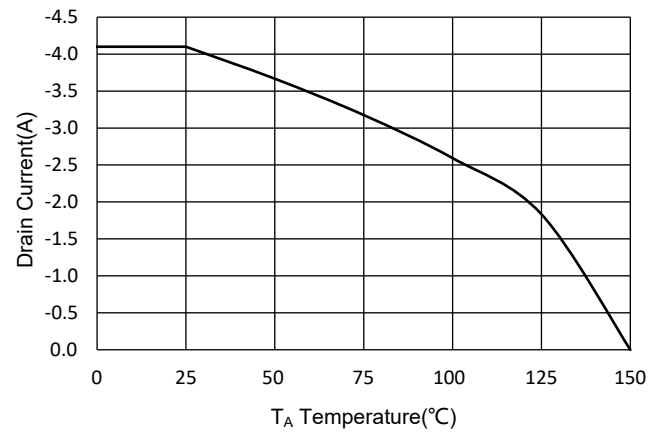
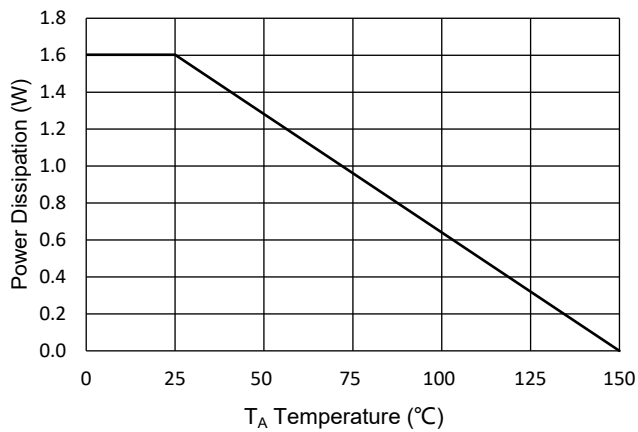


Fig.11 PD Dissipation



Curve Characteristics

Fig.12 Safe Operation Area

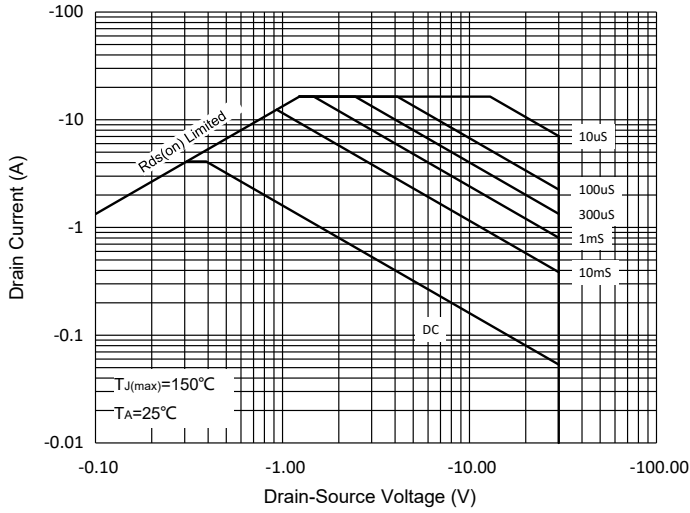
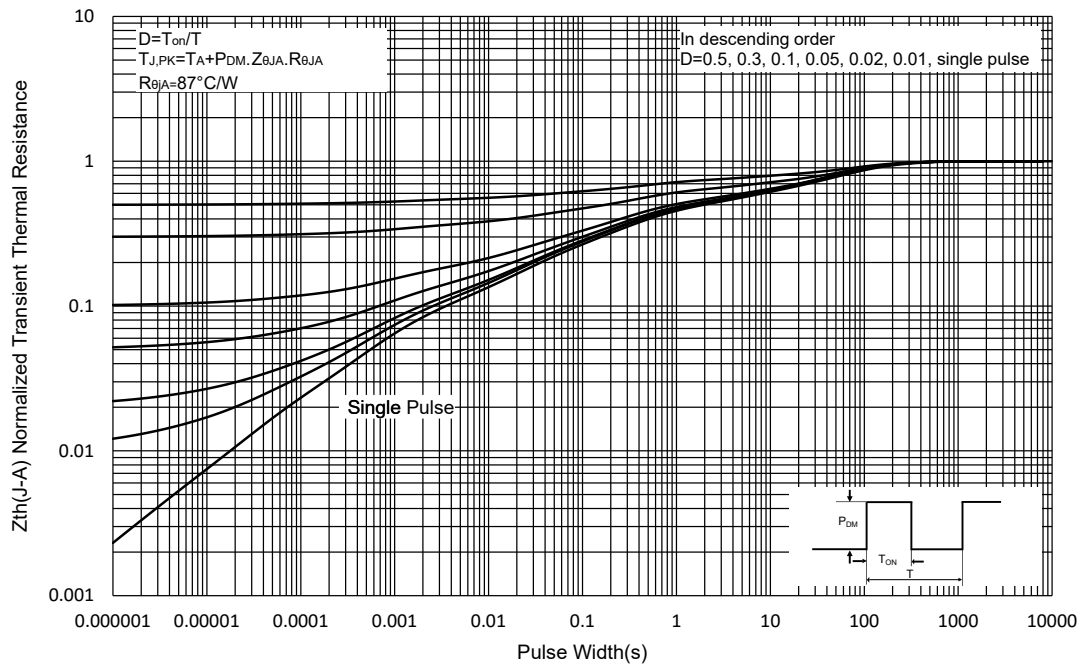


Fig.13 Normalized Transient Thermal Impedance



Ordering Information

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

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