

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

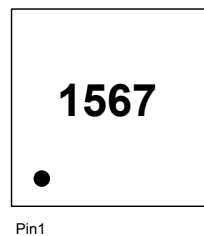
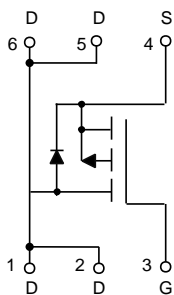
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 60°C/W Junction to Ambient^(Note2)
- Thermal Resistance: 6.9°C/W Junction to Case

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V _{DS}	-20	V
Gate-Source Voltage	V _{GS}	±12	V
Continuous Drain Current	I _D	T _C =25°C	-9
		T _C =70°C	-7.2
Pulsed Drain Current ^(Note3)	I _{DM}	-36	A
Total Power Dissipation ^(Note4)	P _D	18	W

Note:

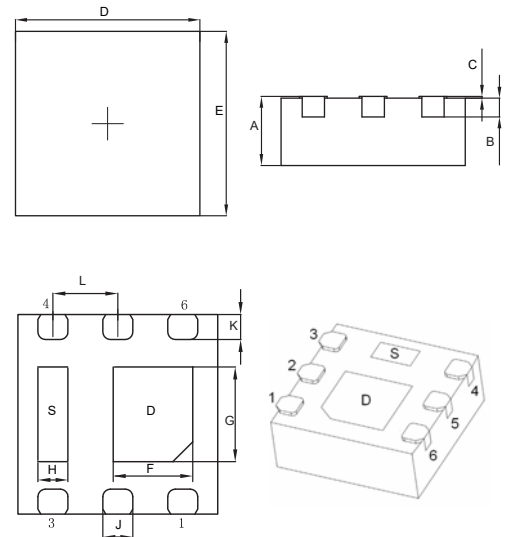
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of RθJA is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P_D is based on max. junction temperature, using junction-case thermal resistance.

Internal Structure and Marking Code



P-CHANNEL MOSFET

DFN2020-6J



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.030	0.034	0.750	0.850	
B	0.008		0.200		BSC.
C	0.000	0.004	0.000	0.100	
D	0.075	0.083	1.900	2.100	
E	0.075	0.083	1.900	2.100	
F	0.024	0.031	0.610	0.810	
G	0.028	0.036	0.710	0.910	
H	0.008	0.016	0.200	0.400	
J	0.008	0.016	0.200	0.400	
K	0.006	0.014	0.150	0.350	
L	0.026		0.650		BSC.

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 12V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-20V, V_{GS}=0V$			-1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.4	-0.6	-1	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-6.7A$		11	18	m Ω
		$V_{GS}=-2.5V, I_D=-6.2A$		14	24	
Gate Resistance	R_g	f=1MHz, Open drain		13		Ω
Diode Characteristics						
Diode Forward Voltage	I_S				-9	A
Continuous Body Diode Current	V_{SD}	$V_{GS}=0V, I_S=-1A$			-1.2	V
Reverse Recovery Charge	t_{rr}	$I_S=-8A, di_f/dt=100A/\mu s$		102		ns
Reverse Recovery Time	Q_{rr}			158		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=-10V, V_{GS}=0V, f=1MHz$		2130		pF
Output Capacitance	C_{oss}			290		
Reverse Transfer Capacitance	C_{rss}			262		
Total Gate Charge	Q_g	$V_{DS}=-15V, V_{GS}=-10V, I_D=-9.1A$		54		nC
Gate-Source Charge	Q_{gs}			3		
Gate-Drain Charge	Q_{gd}			8		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=-10V, V_{DD}=-15V, I_D=-6A, R_G=2.5\Omega$		6		ns
Turn-On Rise Time	t_r			5		
Turn-Off Delay Time	$t_{d(off)}$			263		
Turn-Off Fall Time	t_f			102		

Curve Characteristics

Fig.1 - Typical Output Characteristics

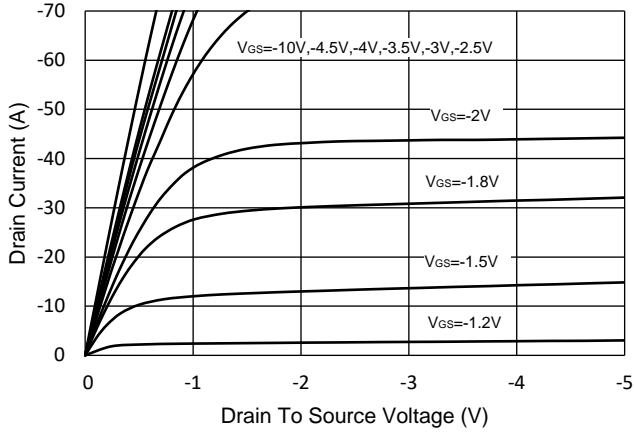


Fig.2 - Transfer Characteristics

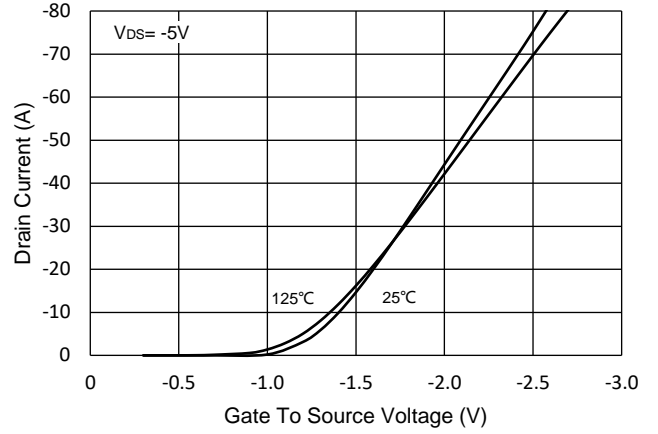


Fig.3 - $R_{DS(ON)}$ - V_{GS}

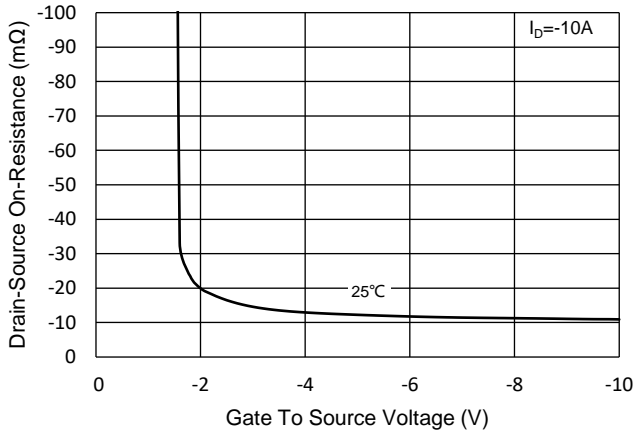


Fig.4 - $R_{DS(ON)}$ - I_D

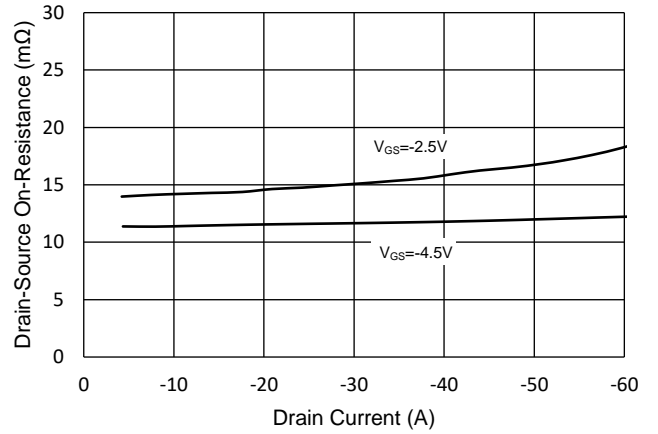


Fig.5 - Capacitance Characteristics

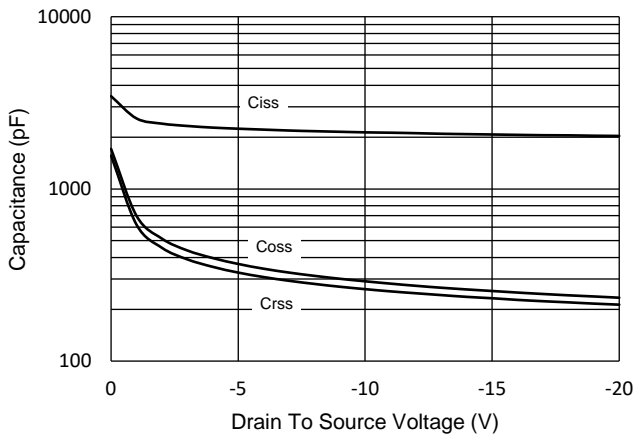
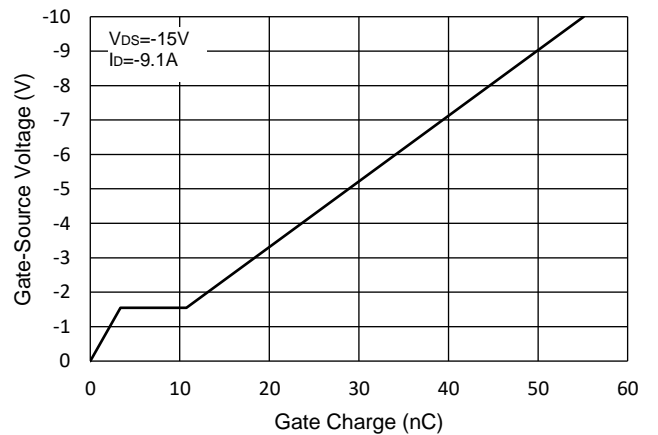


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

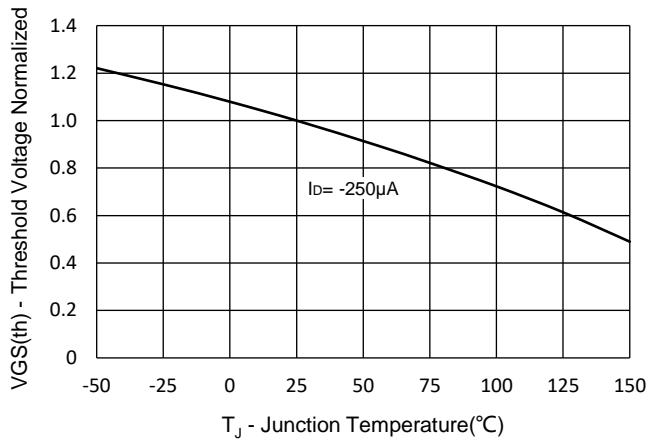


Fig.8 - Normalized On Resistance Characteristics

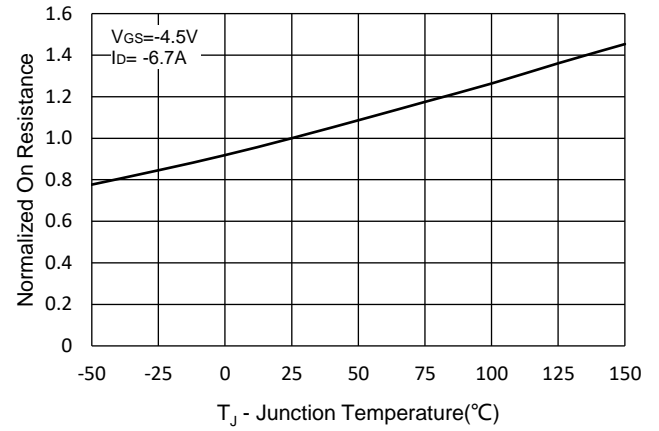


Fig.9 - $I_S - V_{SD}$

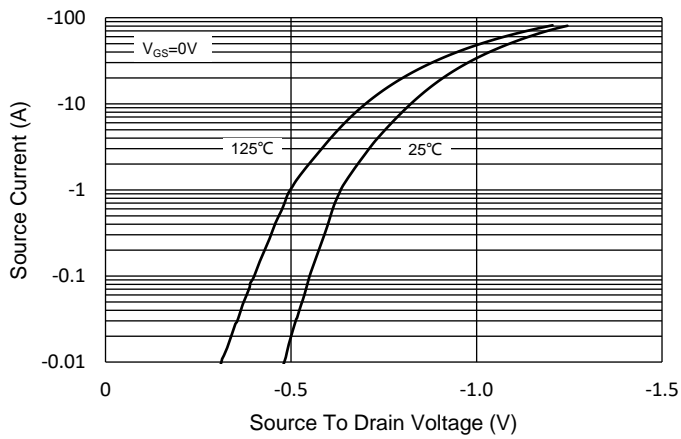


Fig. 10 - Drain Current

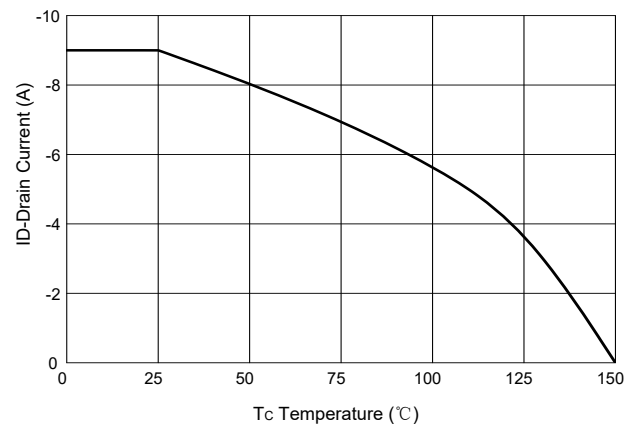
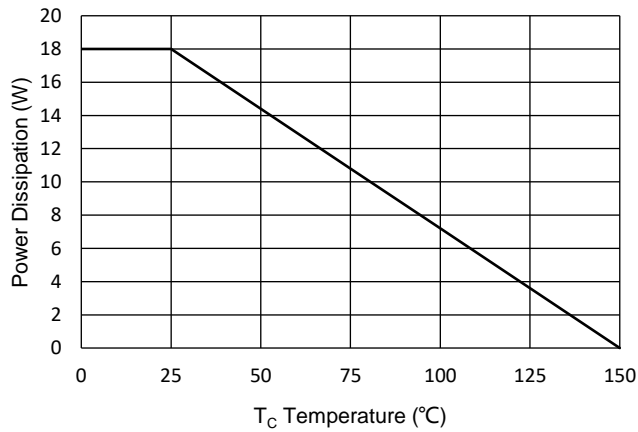


Fig.11 - PD Dissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

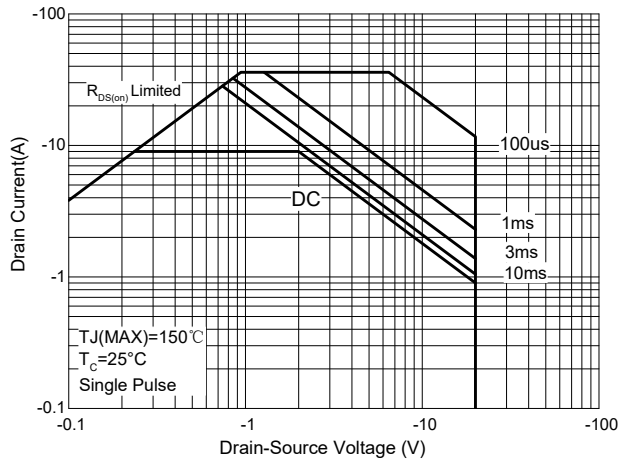
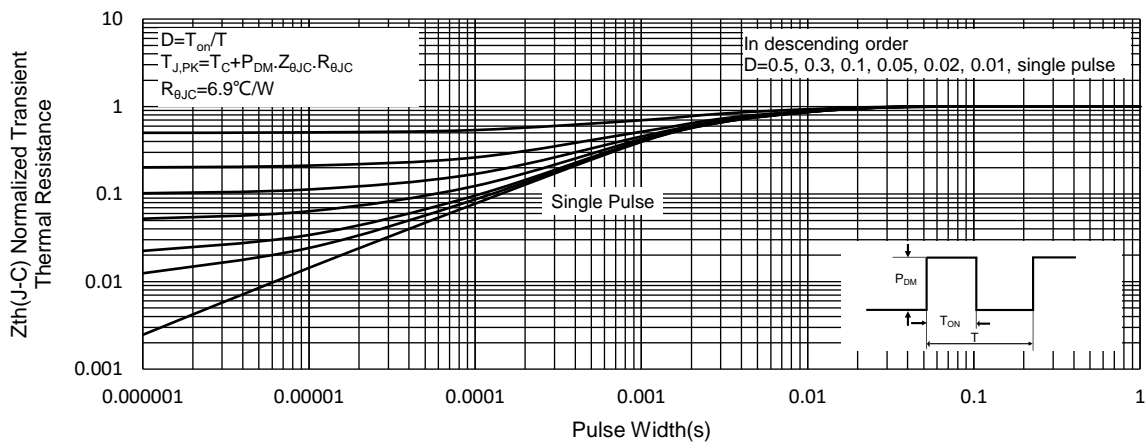


Fig.13 - Normalized Transient Thermal Impedance



Ordering Information

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

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