Features

- Split Gate Trench Mosfet Technology
- Excellent Package for Heat Dissipation
- Moisture Sensitivity Level 3
- 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)

N-CHANNEL MOSFET

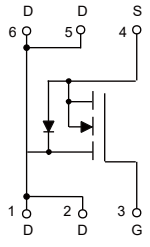
Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 57°C/W Junction to Ambient(Note 2)
- Thermal Resistance: 3.1°C/W Junction to Case

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Volltage		V_{GS}	±10	V
Continuous Drain Current	T_C=25°C	I_D	13	A
	T_C=100°C		8	
Pulsed Drain Current (Note 3)		I_{DM}	52	A
Total Power Dissipation(Note 4)		P_D	40	W

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^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C. The Power dissipation P_{DSM} is based on $R_{\theta JA}$ t≤ 10s and the maximum allowed junction temperature of 150°C. The value in any given application depends on the user's specific board design.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P_D is based on max. junction temperature, using junction-case thermal resistance.

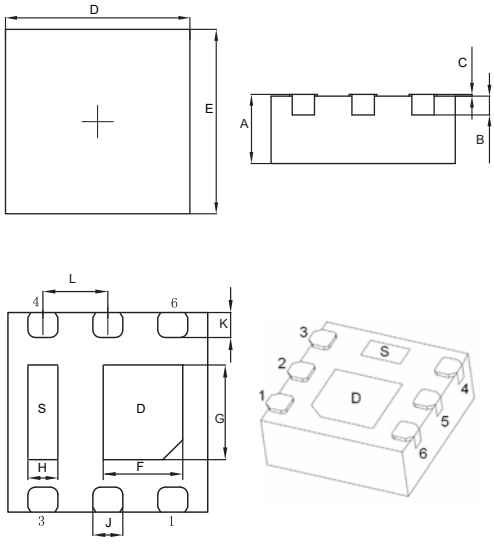
Internal Structure and Marking Code





Pin1

DFN2020-6J



DIMENSIONS					
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=250μA	20			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±10V			±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=250μA	0.5	0.6	1.1	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=4.5V, I_D=9A		5.3	9	mΩ
		V_{GS}=2.5V, I_D=6.5A		6.7	12	
		V_{GS}=1.8V, I_D=4A		9	18.5	
Forward Transconductance	g_{FS}	V_{DS}=6V, I_D=5A		40		S
Gate Resistance	R_g	V_{GS}=0V, f=1MHz		2.1		Ω
Dynamic Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=9A			1	V
Body Diode Reverse Recovery Time	t_{rr}	I_F=6.5A,di/dt=100A/us		24		ns
Body Diode Reverse Recovery charge	Q_{rr}			11		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V,f=1MHz		1302		pF
Output Capacitance	C_{oss}			189		
Reverse Transfer Capacitance	C_{rss}			173		
Total Gate Charge	Q_g	V_{DS}=10V,V_{GS}=8V,I_D=10A		31		nC
Gate-Source Charge	Q_{gs}			1.5		
Gate-Drain Charge	Q_{gd}			5.3		
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V, V_{DD}=8V, R_G=4.5Ω, I_D=10A		5.1		ns
Turn-On Rise Time	t_r			11		
Turn-Off Delay Time	$t_{d(off)}$			46		
Turn-Off Fall Time	t_f			19.5		

Fig. 1 Typical Output Characteristics

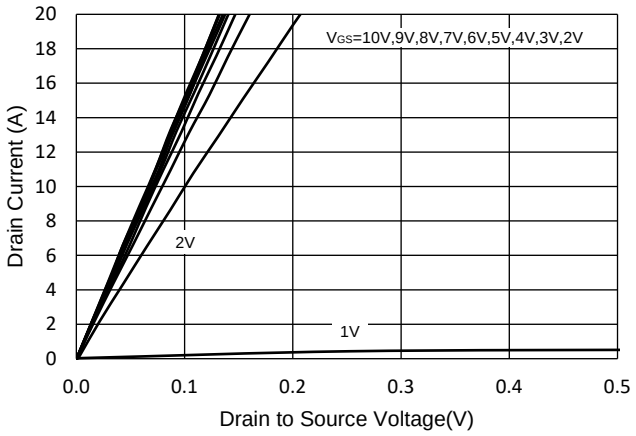


Fig.2 Transfer Characteristic

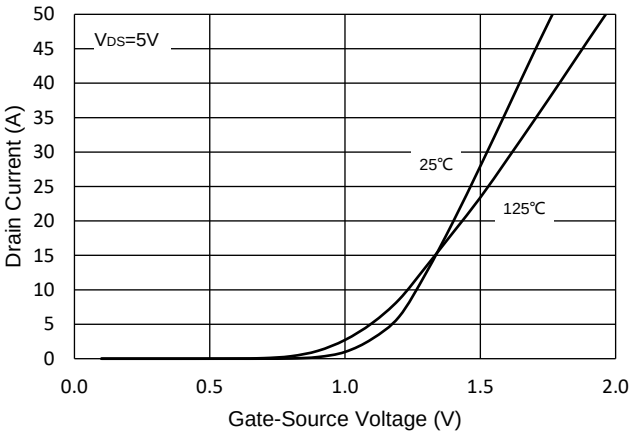


Fig.3 Rdson-Vgs

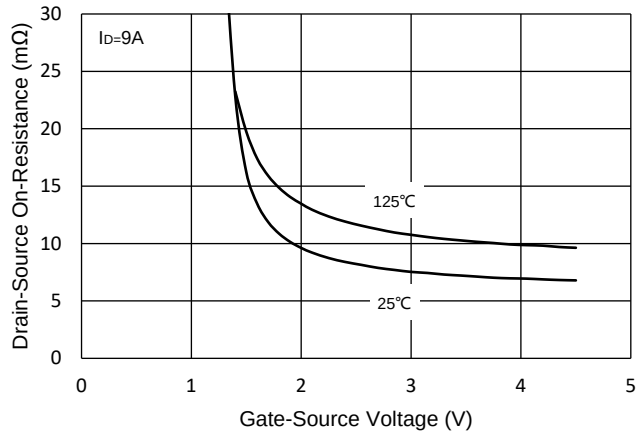


Fig. 4 - $R_{DS(ON)}$—I_D

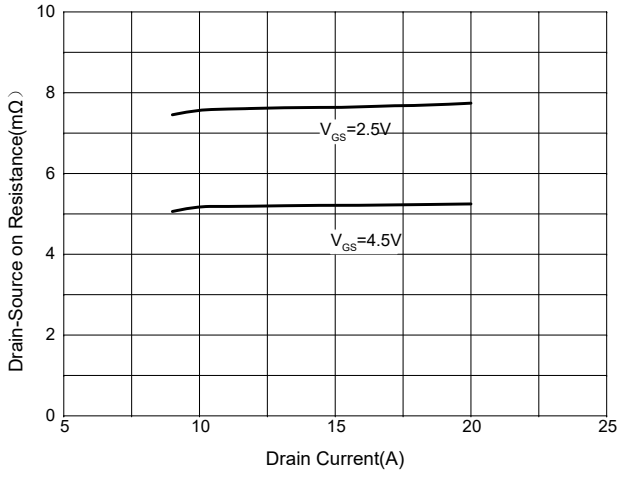


Fig.5 Capacitance Characteristics

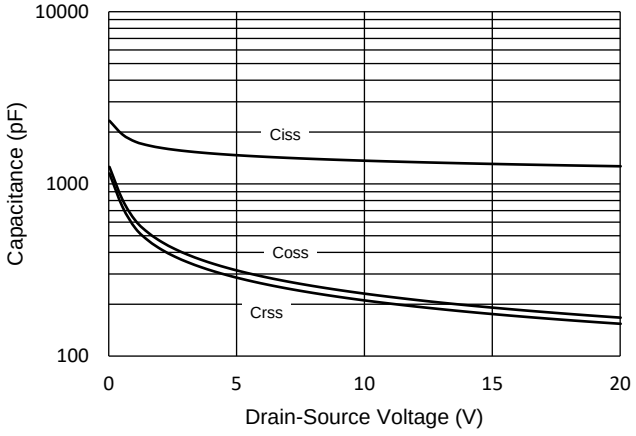


Fig.6 Gate Charge

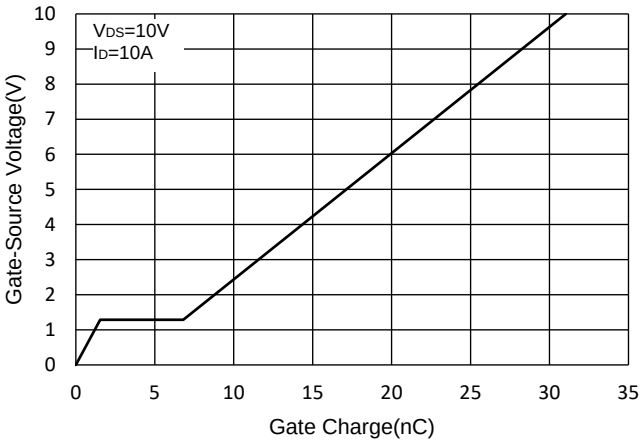


Fig.7 Normalized Threshold Voltage

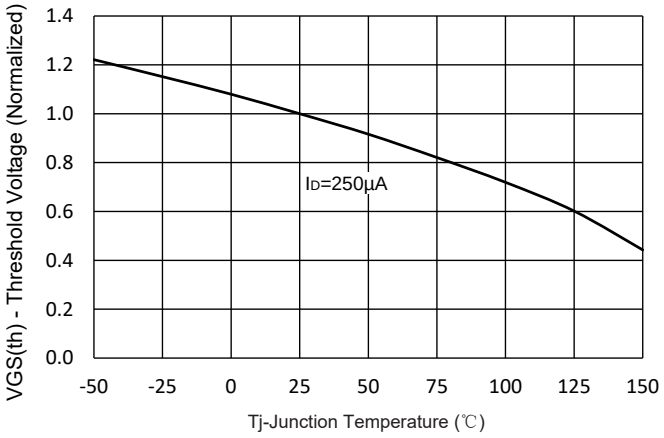


Fig. 8 - Nomalized Threshold voltage

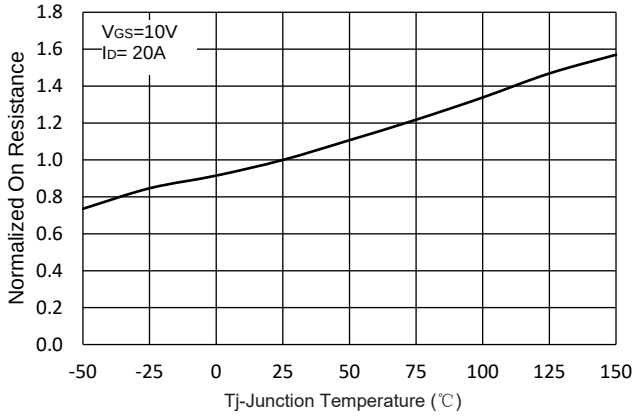


Fig.9 IS-VSD

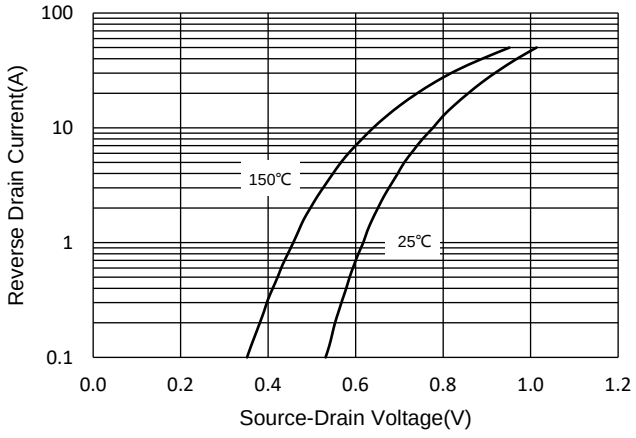


Fig. 10 - Drain Current

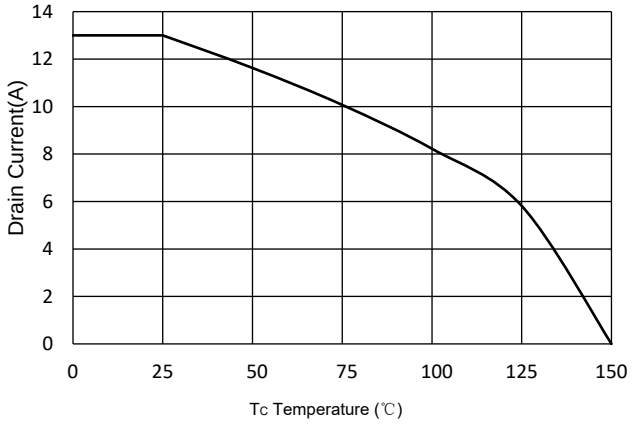


Fig.11 Power Dissipation

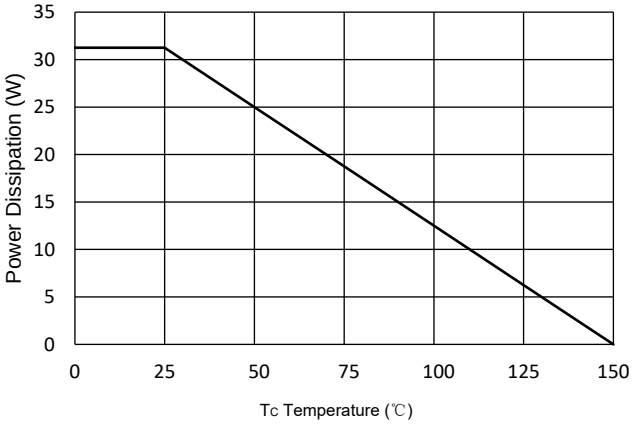


Fig.12 Safe Operation Area

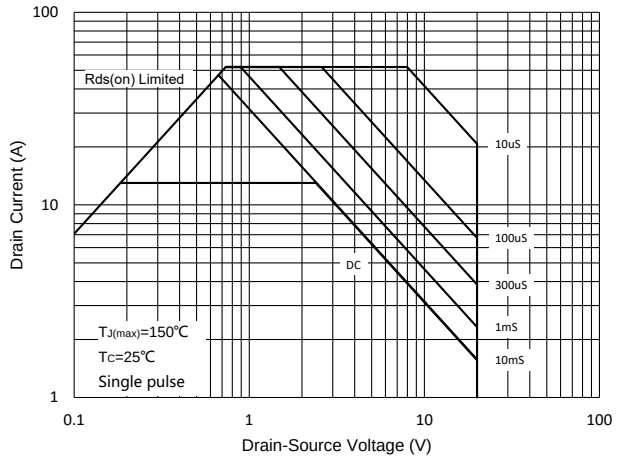
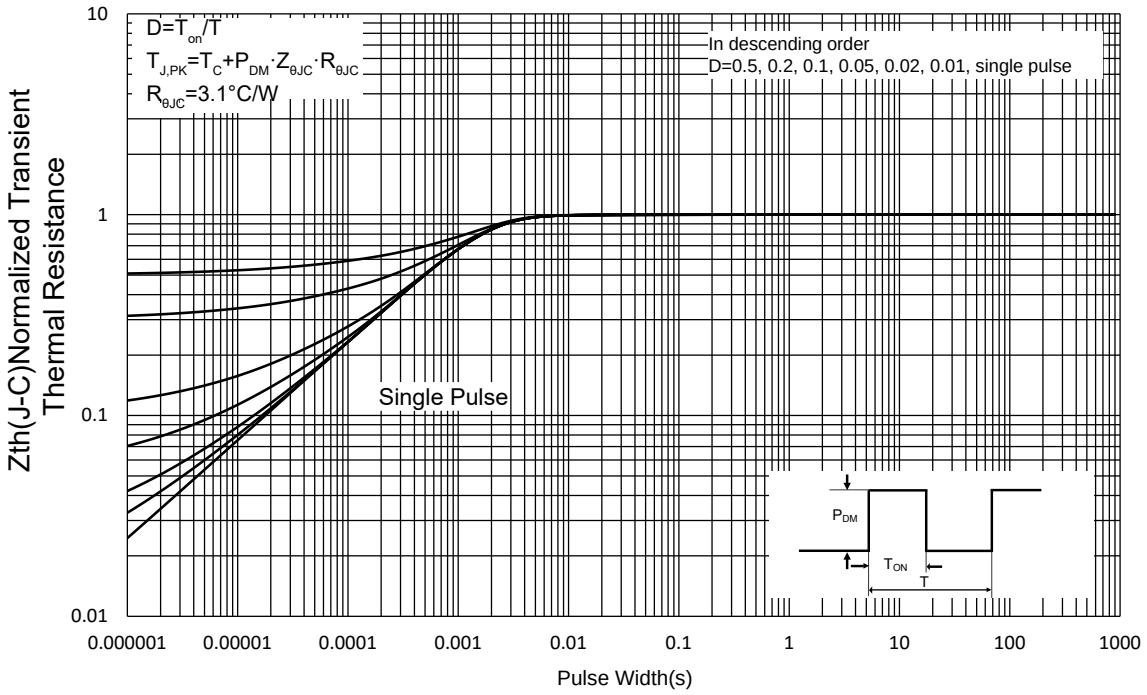


Fig. 13 - Normalized Transient Thermal Impedance



Ordering Information

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

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