

Features

- TrenchFET Power MOSFET
- Epoxy meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 3
- Halogen Free. "Green" Device (Note 1)
- 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
- Maximum Thermal Resistance: 57°C/W Junction to Ambient^(Note 2)

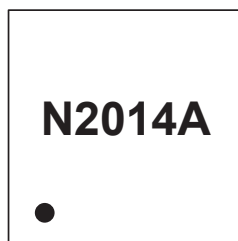
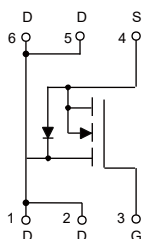
Parameter	Symbol	Rating	Unit
Drain -Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±10	V
Drain Current-continuous	I_D	13	A
Drain Current-Pulse ^(Note 3)	I_{DM}	32	A
Total Power Dissipation	P_D	2.2	W

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. Surface Mounted on FR4 Board, t < 5 sec.

3. Repetitive Rating : Pulse width limited by maximum junction temperature.

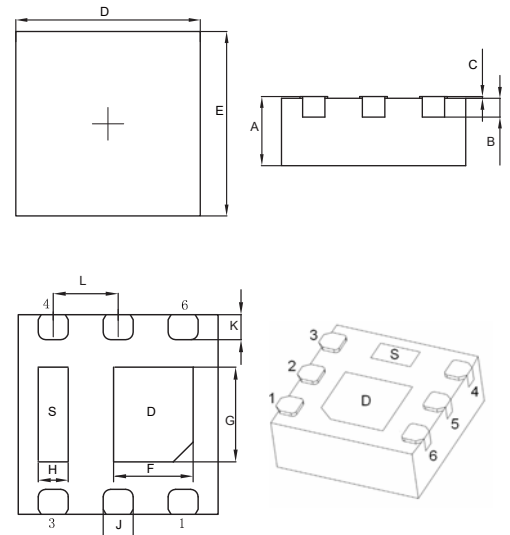
Internal Structure and Marking Code



Pin1

N-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 (Ta=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-Threshold Voltage ^(Note 4)	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.45	0.6	1.1	V
Gate-Body Leakage Current	I_{GSS}	$V_{GS} = \pm 10V, V_{DS} = 0V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$			1	μA
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=9A$		5.3	9	m Ω
		$V_{GS}=2.5V, I_D=6.5A$		6.7	12	
		$V_{GS}=1.8V, I_D=4A$		9	18.5	
Forward Transconductance ^(Note 4)	g_{FS}	$V_{DS}=6V, I_D=5A$		40		S
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=9A$			1	V
Dynamic Characteristics^(Note 5)						
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V, f=1MHz$		1791		pF
Output Capacitance	C_{oss}			229		
Reverse Transfer Capacitance	C_{rss}			197		
Gate Resistance	R_g	$f=1MHz$		11		Ω
Switching Characteristics^(Note 5)						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=10V, V_{GEN}=8V, I_D=10A, R_G=4.5\Omega, R_L=1\Omega$		6.5		ns
Turn-On Rise Time	t_r			42		
Turn-Off Delay Time	$t_{d(off)}$			56		
Turn-Off Fall Time	t_f			32		
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=8V, I_D=10A$		48		nC
Gate-Source Charge	Q_{gs}			5.2		
Gate-Drain Charge	Q_{gd}			4.6		

Notes:

4. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

5. These Parameters Have No Way To Verify.

Curve Characteristics

Fig. 1 - Typical Output Characteristics

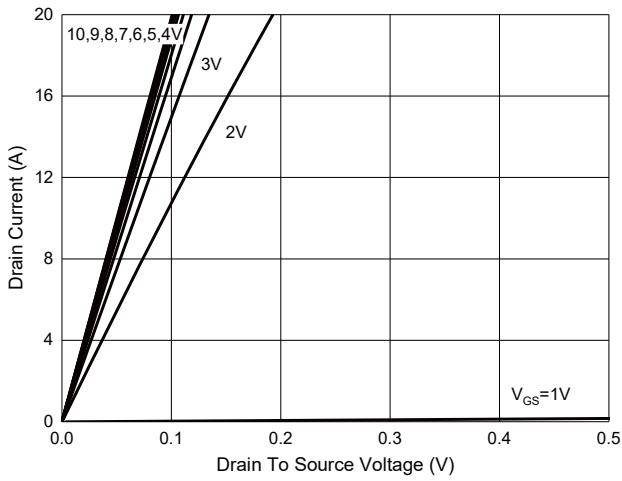


Fig. 2 - $I_S - V_{SD}$

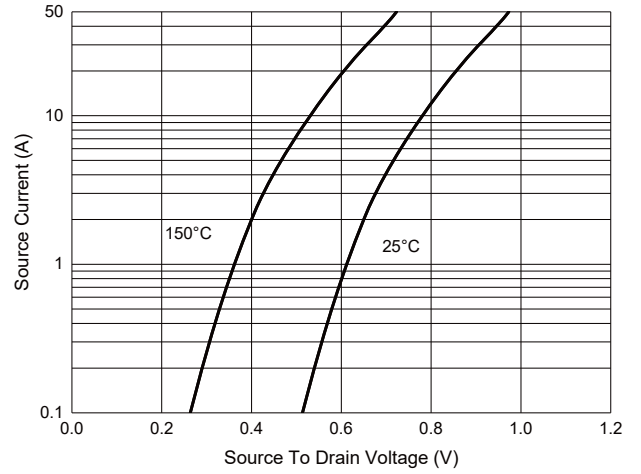


Fig. 3 - $R_{DS(ON)} - I_D$

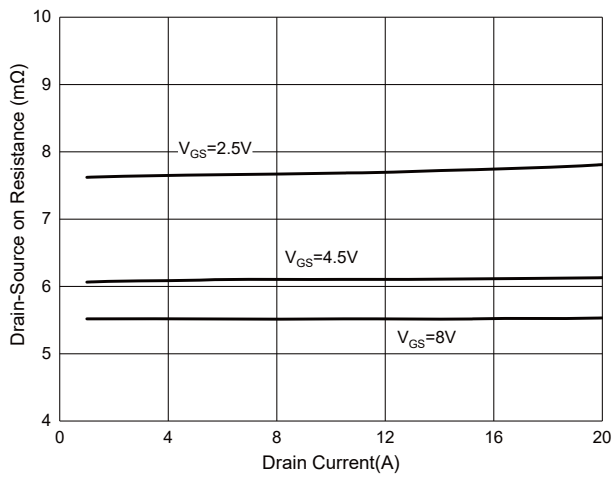


Fig. 4 - Normalized On Resistance Characteristics

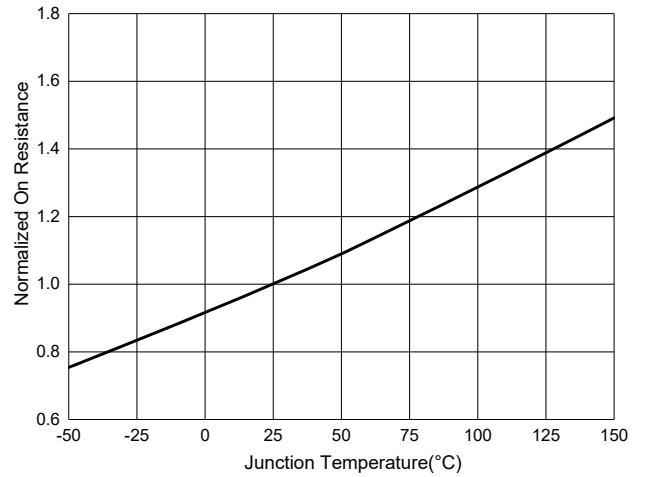


Fig. 5 - Capacitance Characteristics

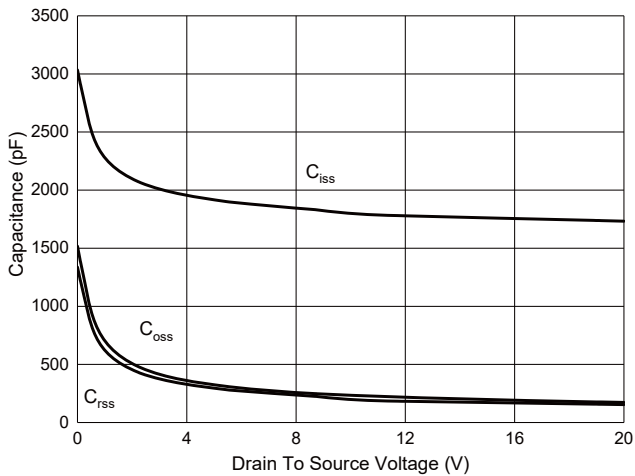
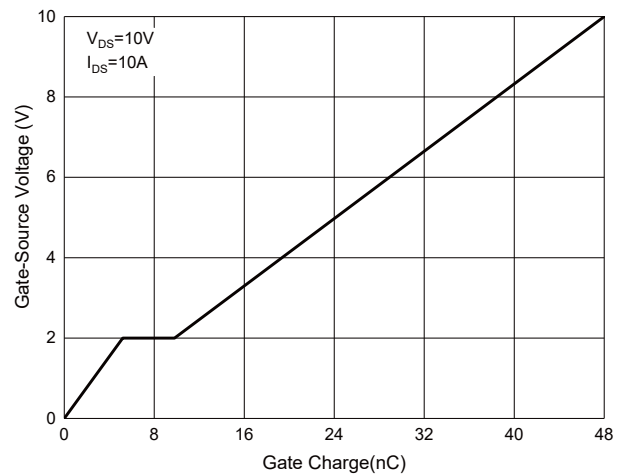
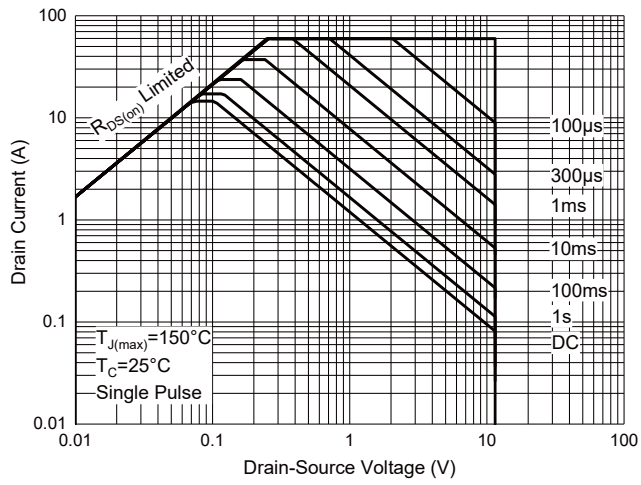


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Safe Operation Area



Ordering Information

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

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