

Features

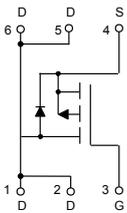
- High Dense Cell Design For Extremely Low $R_{DS(ON)}$
- Rugged and Reliable
- High Speed Switching
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

- Operating Junction Temperature Range : -55°C to $+150^{\circ}\text{C}$
- Storage Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Maximum Thermal Resistance: 167°C/W Junction to Ambient^(Note 1)

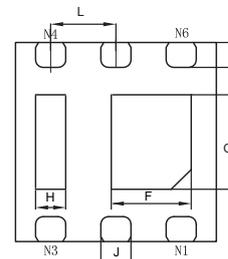
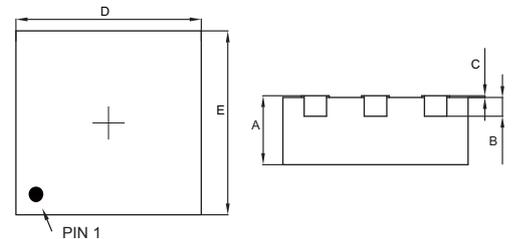
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 8	V
Drain Current-Continuous	I_D	-3	A
Drain Current-Pulse ^(Note 2)	I_{DM}	-10	A
Power Dissipation	P_D	1.25	W

Internal Structure



P-Channel MOSFET

DFN2020-6JA



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.028	0.032	0.700	0.800	
B	0.006		0.150		TYP.
C	0.000	0.002	0.000	0.050	
D	0.077	0.081	1.950	2.050	
E	0.077	0.081	1.950	2.050	
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	0.010	0.014	0.250	0.350	
K	0.008	0.012	0.200	0.300	
L	0.026		0.650		TYP.

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 3)	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.45	-0.7	-1.0	V
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 8V, V_{DS}=0V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-20V, V_{GS}=0V$			-1	μA
Drain-Source On-Resistance ^(Note 3)	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-2.8A$		80	120	m Ω
		$V_{GS}=-2.5V, I_D=-2.0A$		110	150	
Forward Transconductance ^(Note 3)	g_{FS}	$V_{DS}=-5V, I_D=-2.8A$		8		S
Diode Forward Current ^(Note 2)	I_S				-3	A
Diode Forward Voltage ^(Note 3)	V_{SD}	$V_{GS}=0V, I_S=-3A$			-1.2	V
Dynamic Characteristics^(Note 4)						
Input Capacitance	C_{iss}	$V_{DS}=-6V, V_{GS}=0V, f=1MHz$		880		pF
Output Capacitance	C_{oss}			270		
Reverse Transfer Capacitance	C_{rss}			175		
Switching Characteristics^(Note 4)						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=-6V, V_{GS}=-4.5V,$ $I_D=-1A, R_{GEN}=6\Omega$		11	20	ns
Turn-On Rise Time	t_r			5	10	
Turn-Off Delay Time	$t_{d(off)}$			32	65	
Turn-Off Fall Time	t_f			23	45	
Total Gate Charge	Q_g	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-2.8A$		11	14.5	nC
Gate-Source Charge	Q_{gs}			1.5		
Gate-Drain Charge	Q_{gd}			2.1		

Note:

1. Surface Mounted on FR4 Board, $t < 5$ sec.
2. Repetitive Rating : Pulse Width Limited by Maximum Junction Temperature.
3. Pulse Test: Pulse Width=300 μs , Duty Cycle $\leq 2\%$.
4. Guaranteed by Design, Not Subject to Production Testing.

Curve Characteristics

Fig. 1 - Output Characteristics

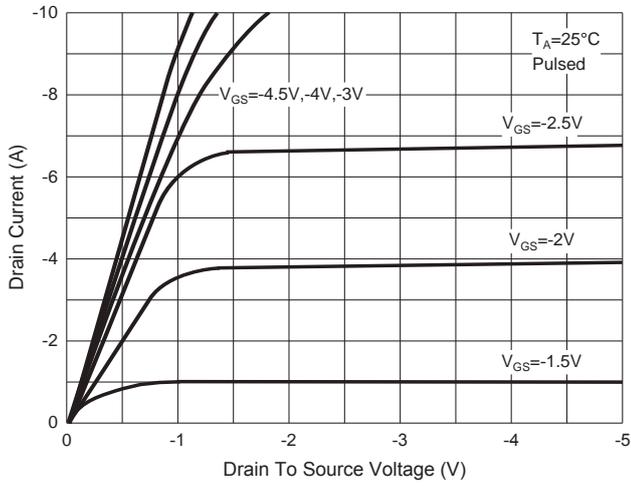


Fig. 2 - Transfer Characteristics

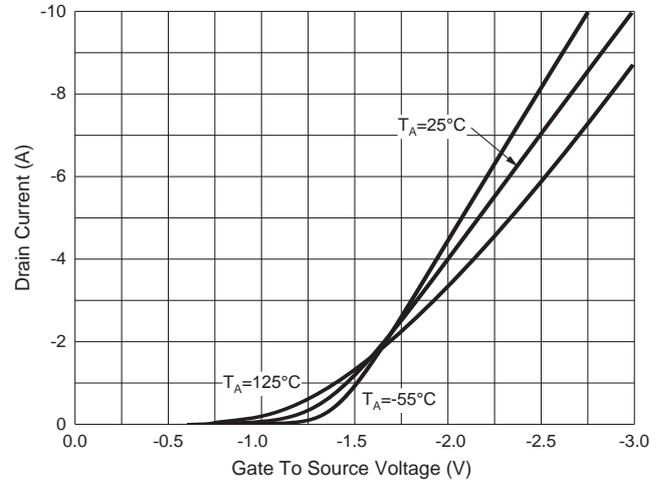


Fig. 3 - Capacitance Characteristics

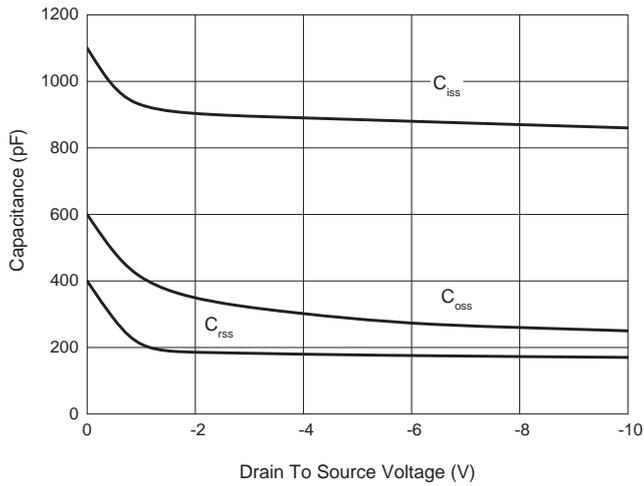


Fig. 4 - Normalized On Resistance Characteristics

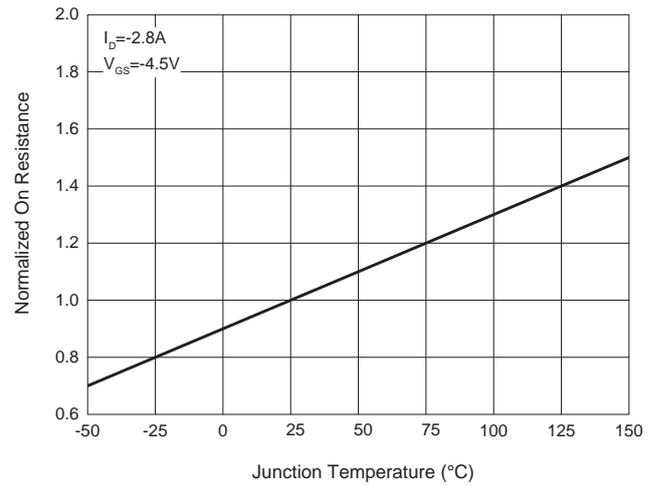


Fig. 5 - Total Gate Charge Characteristics

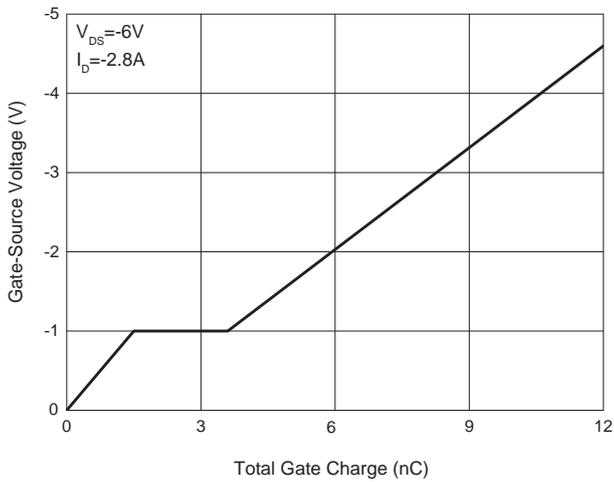
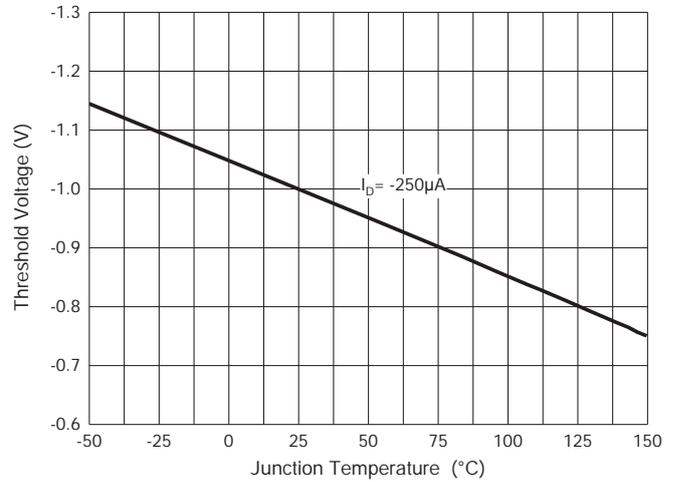


Fig. 6 - Threshold Voltage



Ordering Information

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

Note : Adding "-HF" Suffix For Halogen Free, eg. Part Number-TP-HF

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