

Features

- Trench Power LV MOSFET technology
- High Density Cell Design Low $R_{DS(on)}$
- High Speed Switching
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)
- Moisture Sensitivity Level 1

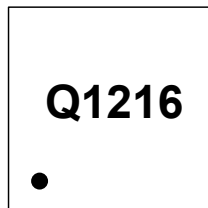
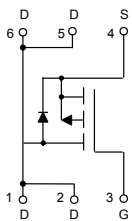
Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- 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}	± 10	V
Continuous Drain Current	I_D	$T_C=25^\circ C$	-16
		$T_C=70^\circ C$	-12.8
Pulsed Drain Current ⁽²⁾	I_{DM}	-64	A
Total Power Dissipation	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. Repetitive Rating; Pulse Width Limited by Maximum Junction Temperature.

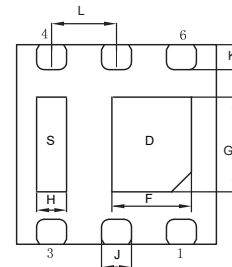
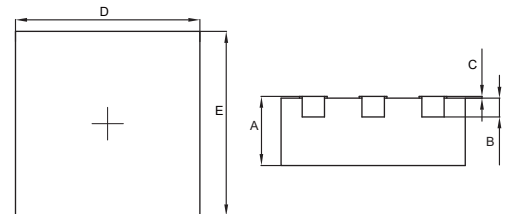
Internal Structure and Marking Code



Pin1

**P-CHANNEL
MOSFET**

DFN2020-6JA



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.030	0.034	0.750	0.850	
B	0.006		0.150		REF.
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 @ 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}	$V_{DS}=0V, V_{GS}=\pm 10V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-20V, V_{GS}=0V$			-1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.4	-0.62	-1	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-10A$		13	17	m Ω
		$V_{GS}=-2.5V, I_D=-6.5A$		16	21	m Ω
		$V_{GS}=-1.8V, I_D=-4A$		20	30	m Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				-16	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=-13A$		-0.8	-1.2	V
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=-10V, V_{GS}=0V, f=1MHz$		2050		pF
Output Capacitance	C_{oss}			411		
Reverse Transfer Capacitance	C_{rss}			362		
Total Gate Charge	Q_g	$V_{DS}=-15V, V_{GS}=-10V, I_D=-9.1A$		30		nC
Gate-Source Charge	Q_{gs}			5.3		
Gate-Drain Charge	Q_{gd}			7.6		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=-10V, V_{DS}=-15V, I_D=-6A, R_{GEN}=2.5\Omega$		14		ns
Turn-On Rise Time	t_r			20		
Turn-Off Delay Time	$t_{d(off)}$			95		
Turn-Off Fall Time	t_f			65		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

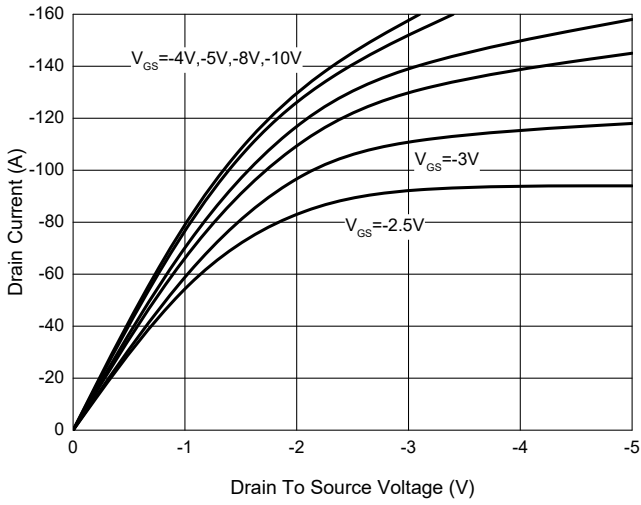


Fig. 2 - Transfer Characteristics

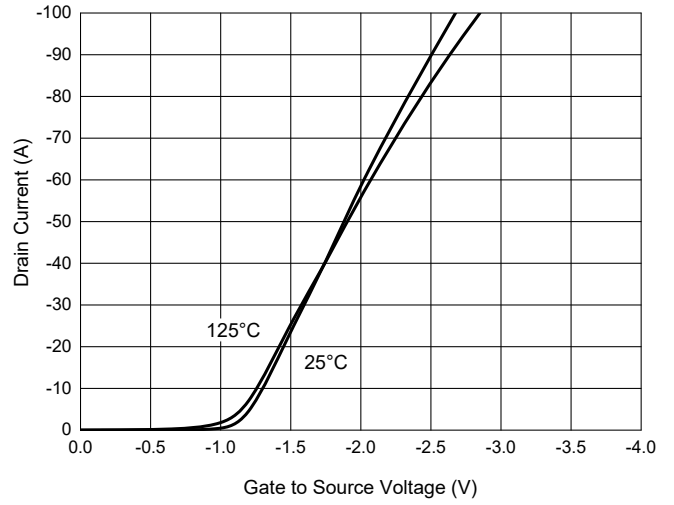


Fig. 3 - $R_{DS(ON)} - I_D$

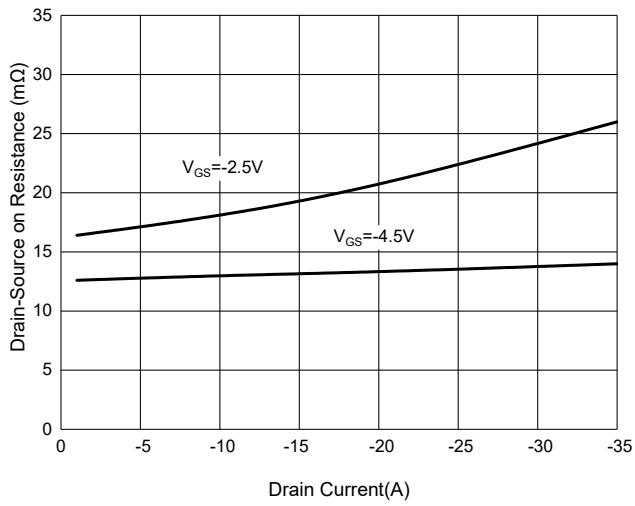


Fig. 4 - Normalized On Resistance Characteristics

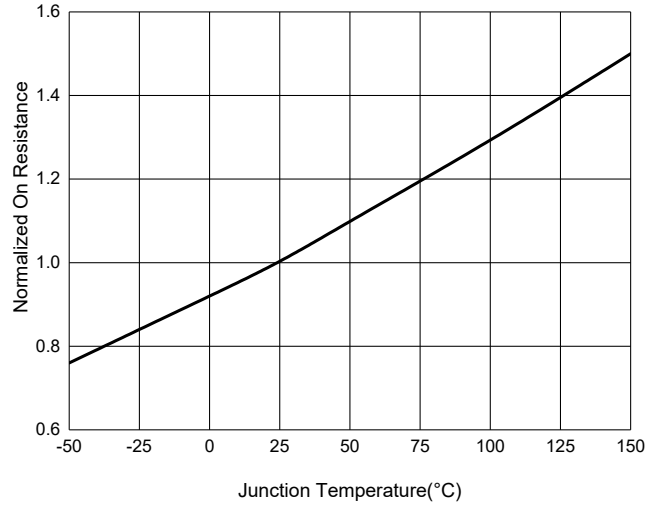


Fig. 5 - Capacitance Characteristics

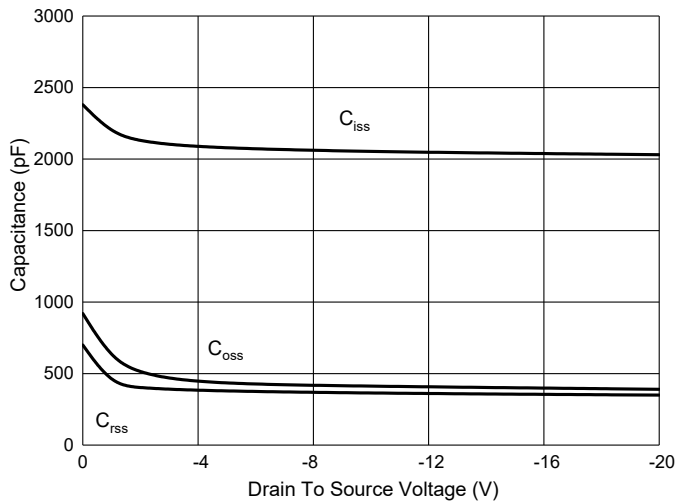
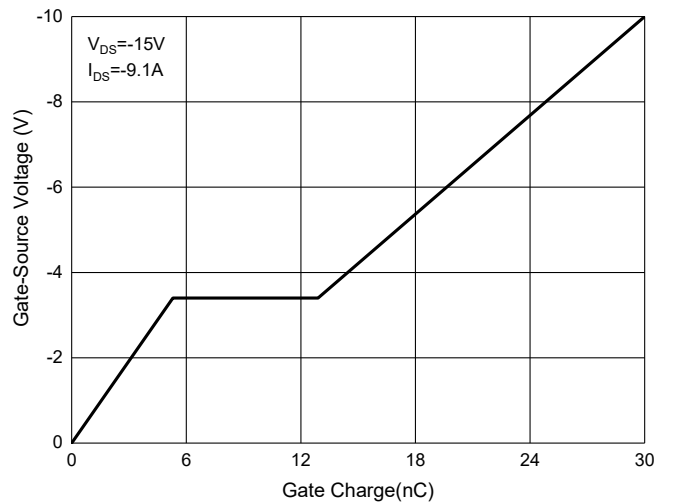
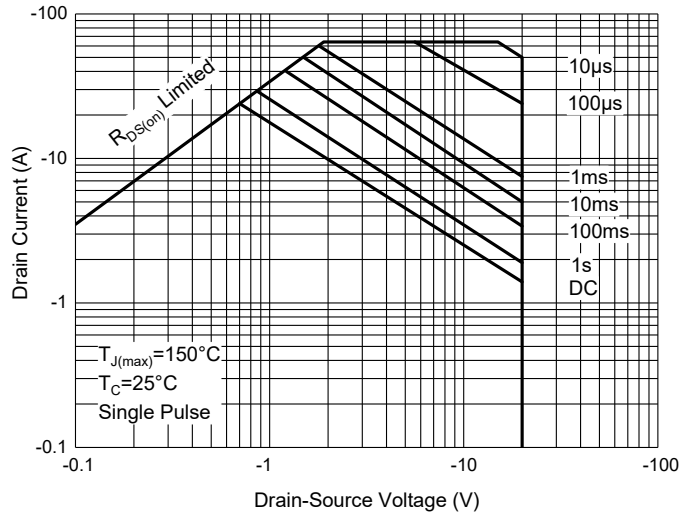


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Safe Operation Area



Ordering Information

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

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