

Features

- AEC-Q101 Qualified
- Trench FET Power MOSFET
- Halogen Free (Note1)
- Moisture Sensitivity Level 3
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

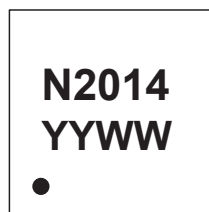
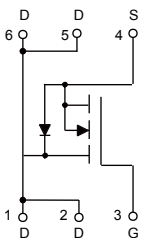
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 167°C/W Junction to Ambient (Note2)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	12	V
Gate-Source Voltage	V_{GS}	±8	V
Continuous Drain Current	I_D	15	A
Pulsed Drain Current (Note3)	I_{DM}	60	A
Single Pulsed Avalanche Energy ($L=0.5mH$)	E_{AS}	25	mJ

Notes:

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 Using The Minimum Pad Size, 1oz Copper.
3. Surface Mounted On FR4 Board Using 1 Square Inch Pad Size, 1oz Copper.

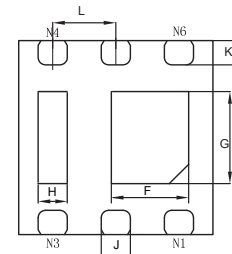
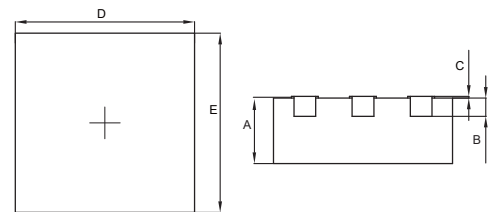
Internal Structure and Marking Code



YYWW: 4 codes in total
YY is the year
WW is the cycle

N-Channel MOSFET

DFN2020-6LE



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.030	0.033	0.750	0.850	
B	0.008		0.200		REF.
C	0.000	0.002	0.000	0.050	
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	0.010	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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	12			V
Gate-Threshold Voltage ^(Note 4)	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.40	0.7	1.1	V
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 8V, V_{DS}=0V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=12V, V_{GS}=0V$			1	μA
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=8V, I_D=5A$		5	8	m Ω
		$V_{GS}=4.5V, I_D=5A$		7	9	
		$V_{GS}=2.5V, I_D=5A$		9	11	
Forward Transconductance ^(Note 4)	g_{FS}	$V_{DS}=6V, I_D=5A$		40		S
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=10A$			1.2	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_{riss}			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 Cycles $\leq 2\%$.

5. These Parameters Have No Way To Verify.

Curve Characteristics

Fig. 1 - Typical Output Characteristics

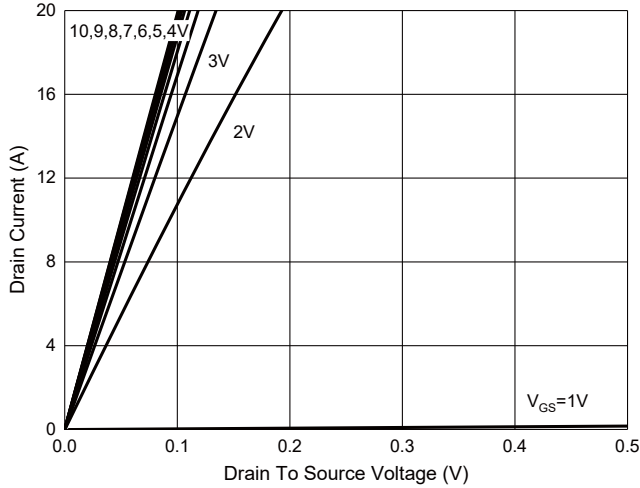


Fig. 2 - $I_S - V_{SD}$

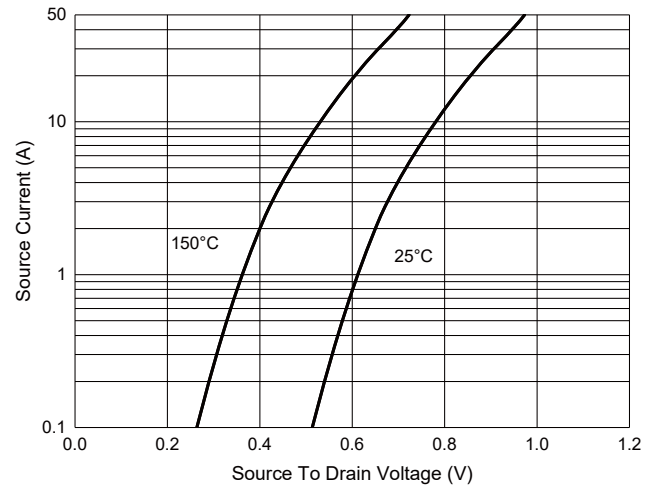


Fig. 3 - $R_{DS(ON)} - I_D$

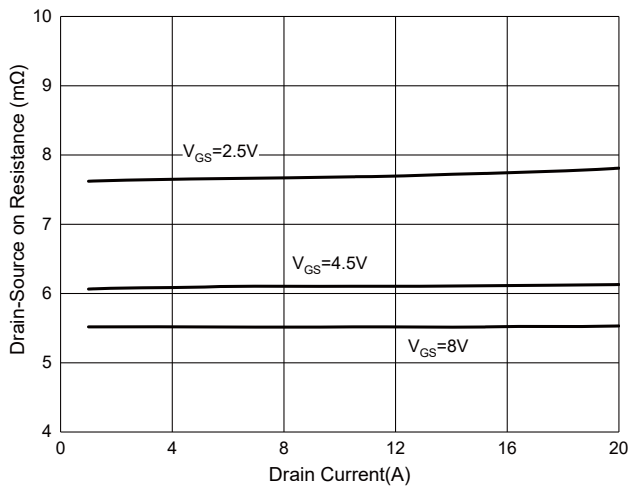


Fig. 4 - Normalized On Resistance Characteristics

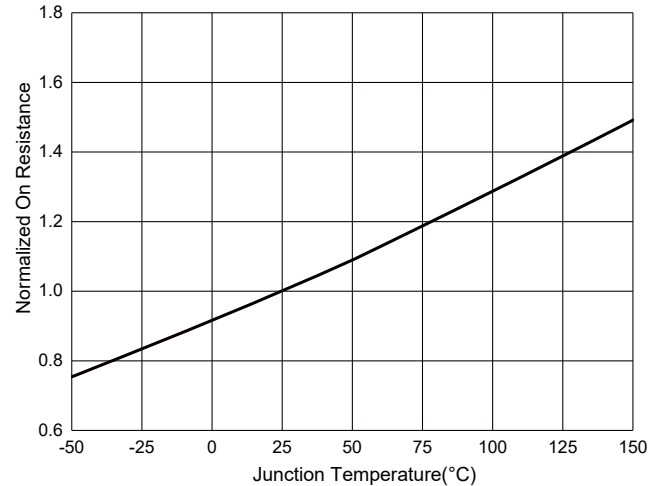


Fig. 5 - Capacitance Characteristics

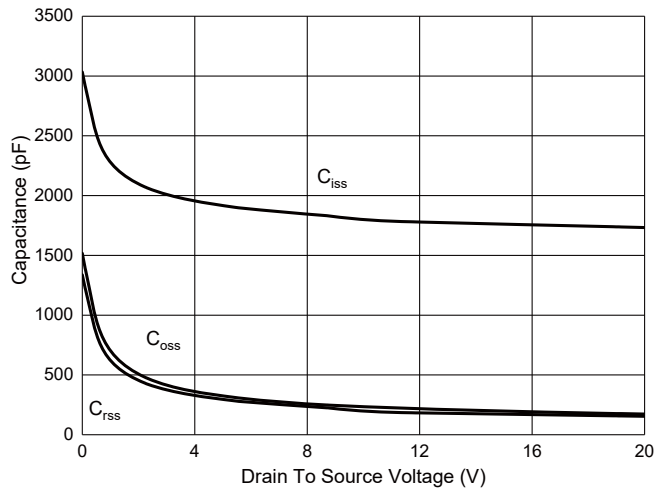
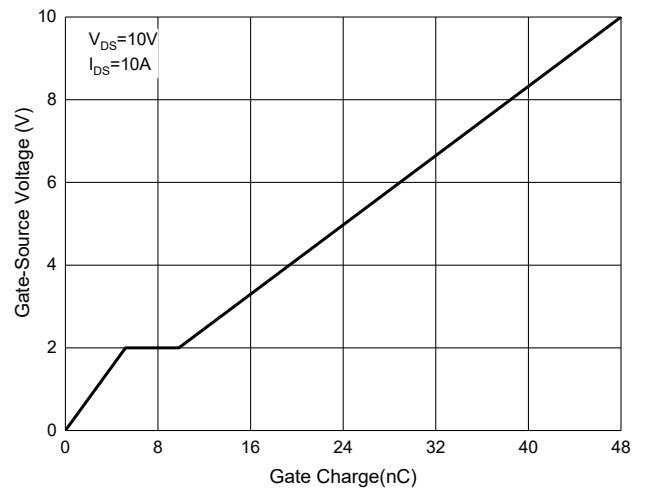
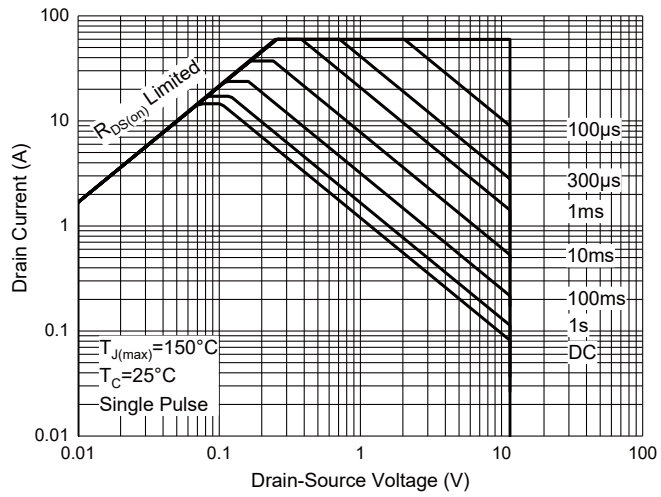


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Safe Operation Area



Ordering Information

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

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