

Features

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

Maximum Ratings

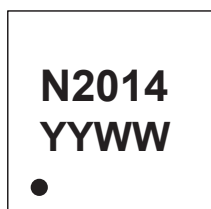
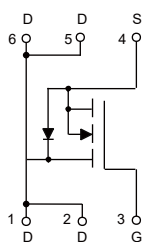
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Typical Thermal Resistance: 52.5°C/W Junction to Ambient^(Note2)

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
		9.5	
	$T_A=25^\circ\text{C}$		
	$T_A=100^\circ\text{C}$		
Pulsed Drain Current ^(Note 3)	I_{DM}	60	A
Total Power Dissipation ^(Note 4)	P_D	2.4	W
Single Pulse Avalanche Energy ^(Note 5)	E_{AS}	36	mJ

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. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ\text{C}$.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P_D is based on max. junction temperature, using junction-ambient thermal resistance.
5. $T_J=25^\circ\text{C}$, $V_{DD}=15\text{V}$, $V_{GS}=10\text{V}$, $R_G=25\Omega$, $L=0.5\text{mH}$.

Internal Structure and Marking Code

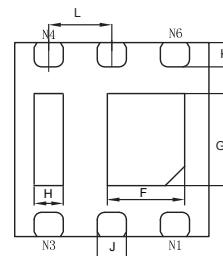
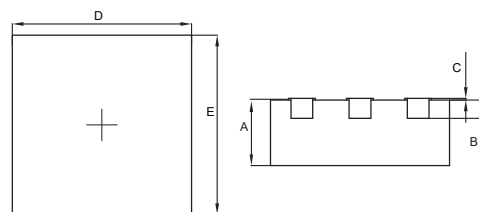


Pin1

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

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.

N-Channel MOSFET 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	12			V
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±8V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =12V, V _{GS} =0V			1	μA
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.4	0.7	1.1	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =8V, I _D =5A		5	8	mΩ
		V _{GS} =4.5V, I _D =5A		7	9	
		V _{GS} =2.5V, I _D =5A		9	11	
Gate Resistance	R _g	f=1MHz, Open drain		1.7		Ω
Diode Characteristics						
Continuous Body Diode Current	I _S				15	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =10A			1.2	V
Reverse Recovery Time	t _{rr}	I _F =10A, dI/dt=100A/μs		26		ns
Reverse Recovery Charge	Q _{rr}			12		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =10V,V _{GS} =0V,f=1MHz		1337		pF
Output Capacitance	C _{oss}			228		
Reverse Transfer Capacitance	C _{rss}			201		
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 _{DD} =10V, V _{GS} =8V, R _G =4.5Ω, I _D =10A		5.5		ns
Turn-On Rise Time	t _r			11		
Turn-Off Delay Time	t _{d(off)}			47		
Turn-Off Fall Time	t _f			21		

Curve Characteristics

Fig.1 - Typical Output Characteristics

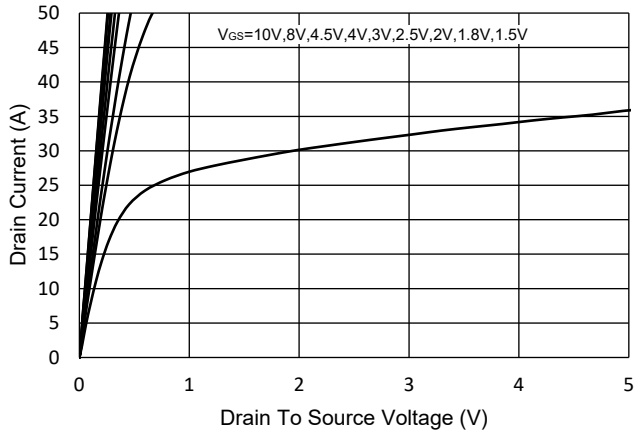


Fig.2 - Transfer Characteristic

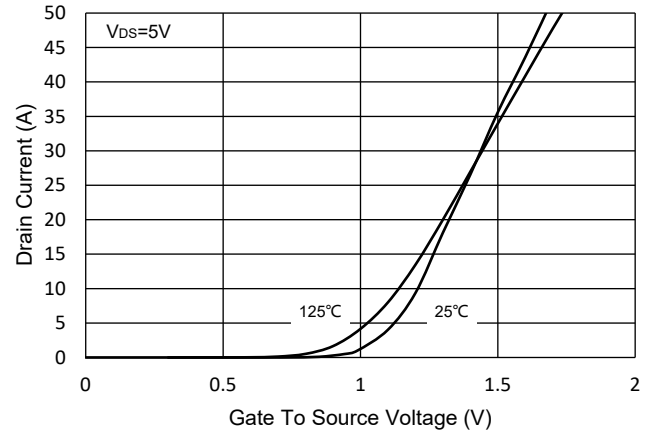


Fig.3 - $R_{DS(ON)}$ - V_{GS}

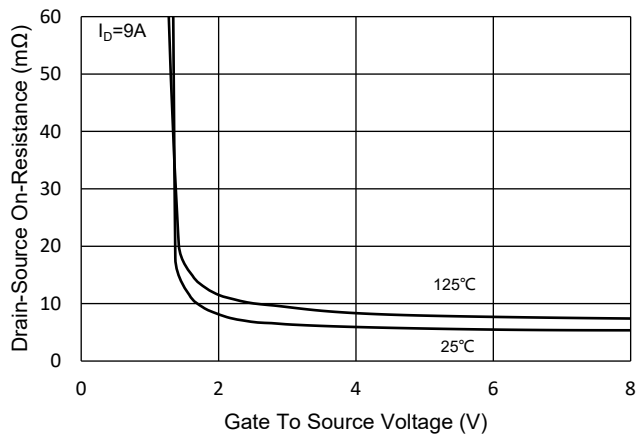


Fig.4 - $R_{DS(ON)}$ - I_D

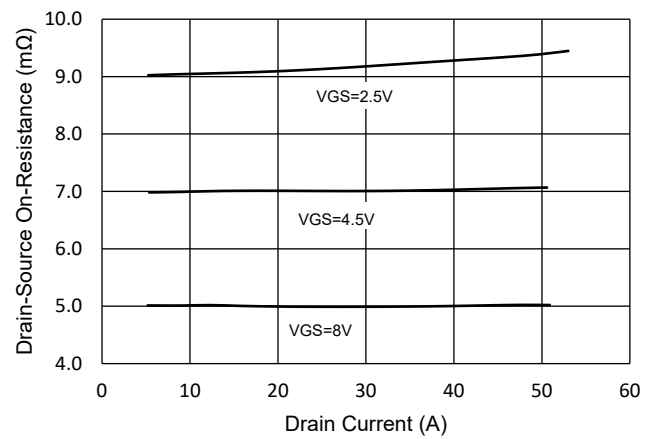


Fig.5 - Capacitance Characteristics

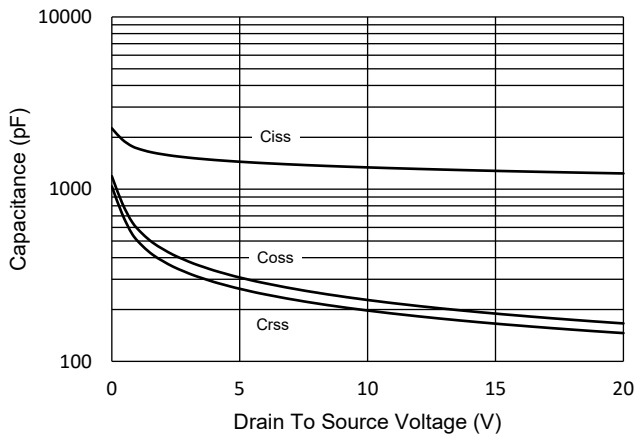
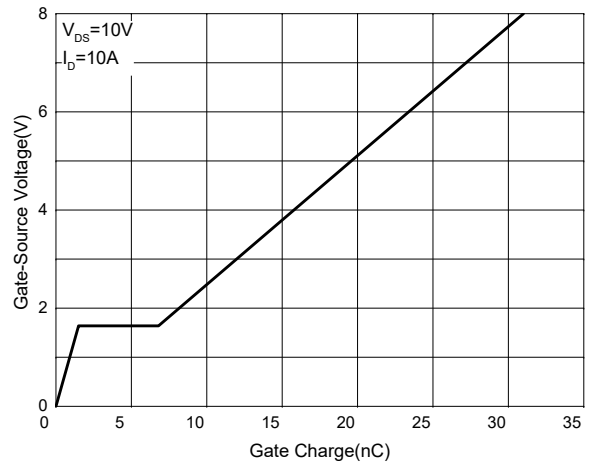


Fig. 6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

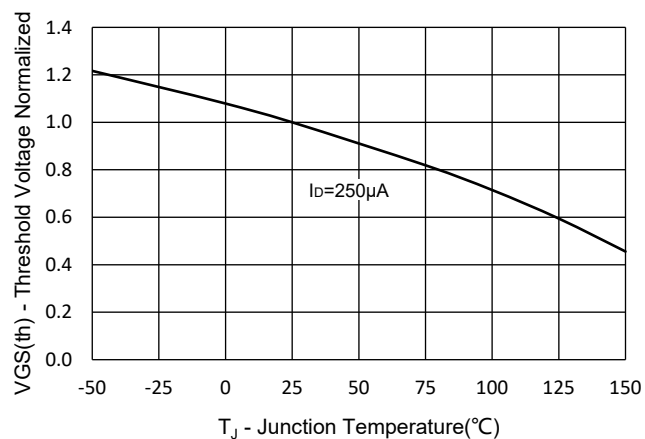


Fig.8 - Normalized On Resistance Characteristics

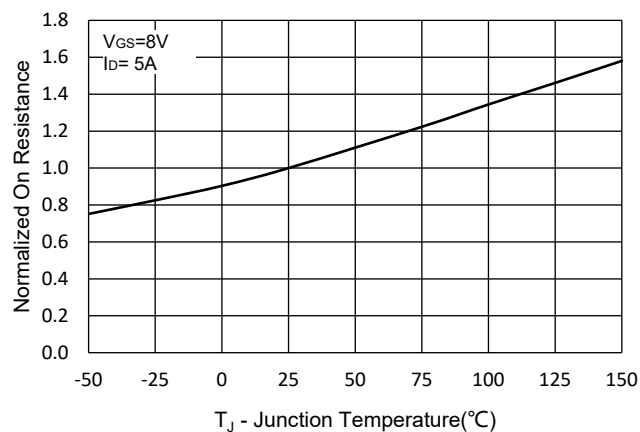


Fig.9 - $I_S - V_{SD}$

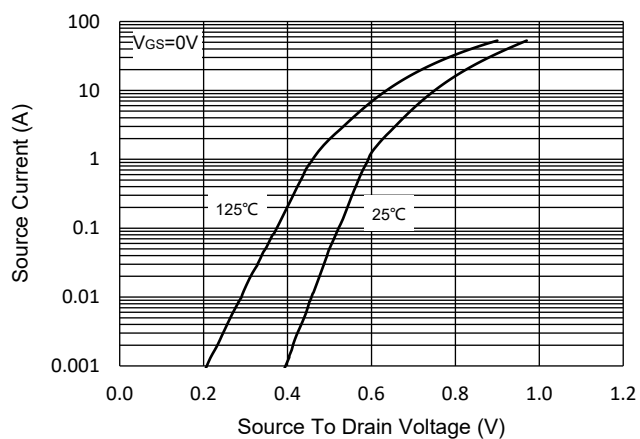


Fig.10 - Drain Current

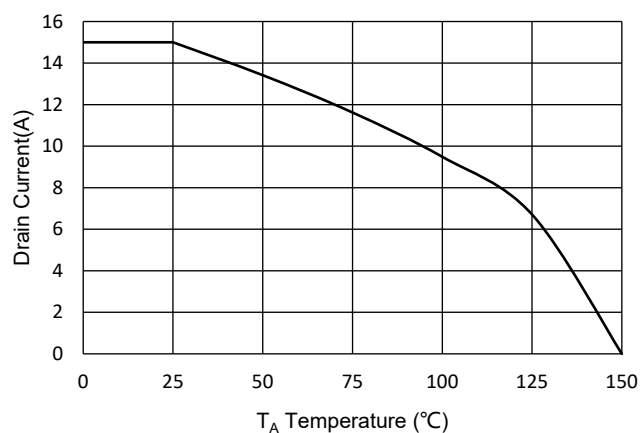
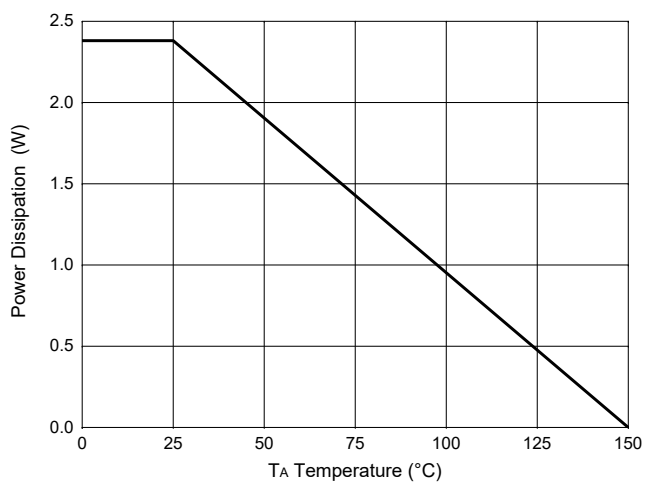


Fig.11-PD Dissipation



Curve Characteristics

Fig.12 - Safe Operation Area

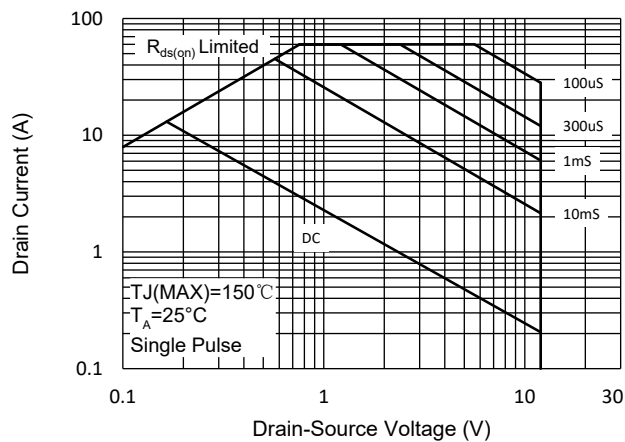
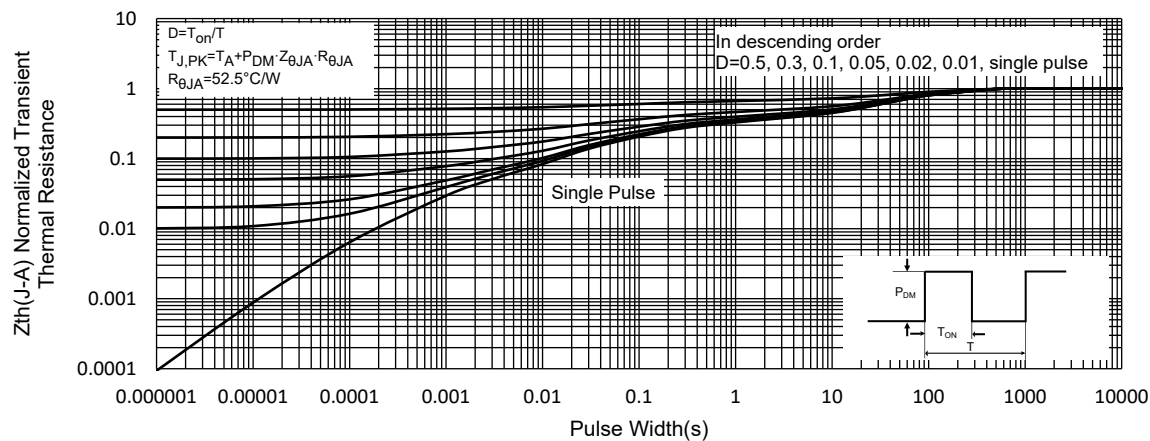


Fig.13 - Normalized Transient Thermal Impedance



Ordering Information

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

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