Features

- Trench LV MOSFET Technology
- High Dense Cell Design for Extremely Low $R_{DS(ON)}$
- Moisture Sensitivity Level 1
- Halogen Free. “Green” Device (Note 1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

N-Channel MOSFET

Maximum Ratings

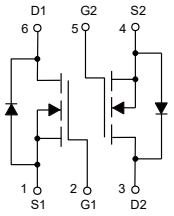
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Maximum Thermal Resistance: 89°C/W Junction to Ambient(Note 2)

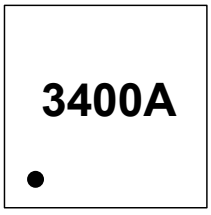
Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Volltage		V_{GS}	±12	V
Continuous Drain Current	T_A=25°C	I_D	5	A
	T_A=70°C		4	
Pulsed Drain Current (Note 3)		I_{DM}	20	A
Total Power Dissipation (Note 4)		P_D	1.4	W

Note:

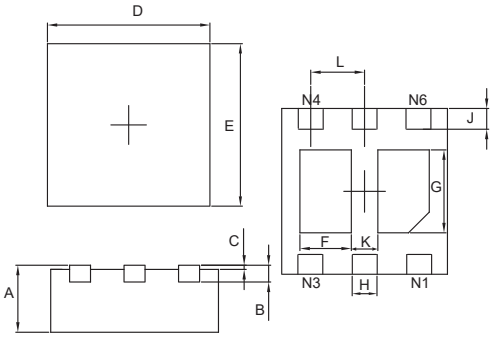
1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of RthJA is measured with the device mounted on 1 in2 FR-4 board with 2oz. copper, in a still air environment with T_A=25°C
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P_D is based on max. junction temperature, using junction-ambient thermal resistance.

Internal Structure and Marking Code





DFN2020-6L



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.030	0.034	0.750	0.850	
B	0.008		0.200		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	0.017	0.027	0.440	0.690	
G	0.033	0.043	0.840	1.090	
H	0.010	0.014	0.250	0.350	
J	0.007	0.015	0.175	0.375	
K	0.010	0.014	0.250	0.350	
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=250μA	30			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±12V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=24V, V_{GS}=0V			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.7	0.9	1.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=5.8A		24	32	mΩ
		V_{GS}=4.5V, I_D=5A		27	38	
		V_{GS}=2.5V, I_D=4A		32	45	
Gate Resistance	R_G	f=1MHz, Open drain		1.7		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				5	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=1A			1	V
Reverse Recovery Time	t_{rr}	I_F=5A, dI_F/dt=280A/μs		10		ns
Reverse Recovery Charge	Q_{rr}			11		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V,f=1MHz		645		pF
Output Capacitance	C_{oss}			58		
Reverse Transfer Capacitance	C_{rss}			50		
Total Gate Charge	Q_g	V_{DS}=15V,V_{GS}=10V,I_D=5A		16		nC
Gate-Source Charge	Q_{gs}			1.5		
Gate-Drain Charge	Q_{gd}			2.3		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=20V, V_{GS}=10V, R_G=2.2Ω, I_D=5A		7		ns
Turn-On Rise Time	t_r			28		
Turn-Off Delay Time	$t_{d(off)}$			18		
Turn-Off Fall Time	t_f			2		

Curve Characteristics

Fig. 1 Typical Output Characteristics

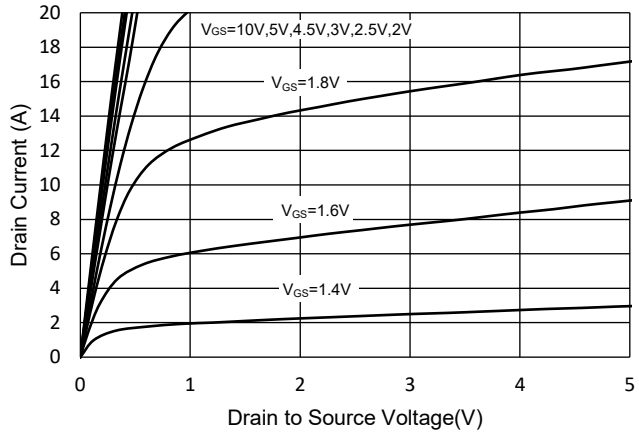


Fig.2 Transfer Characteristic

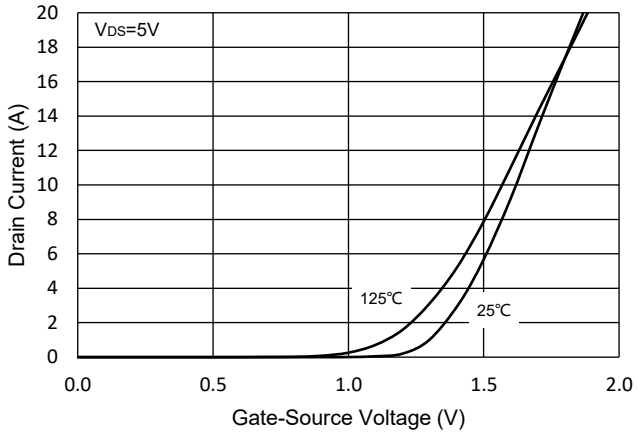


Fig.3 Rdson-Vgs

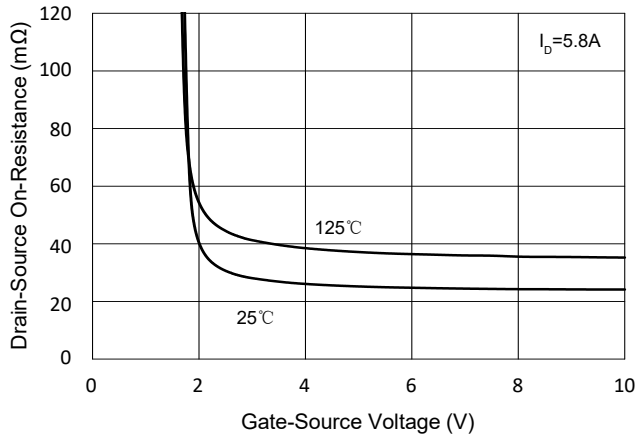


Fig.4 RDS(ON)-ID

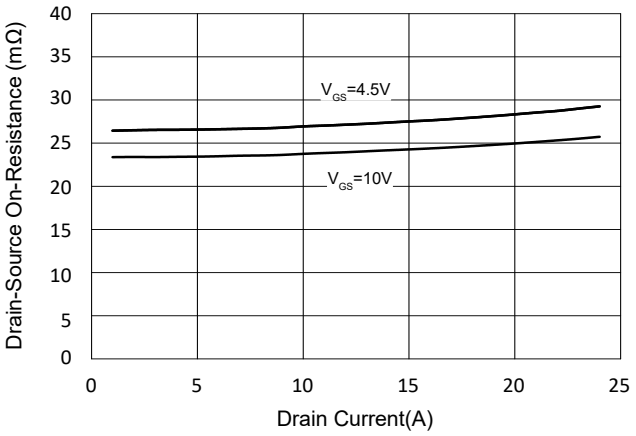


Fig.5 Capacitance Characteristics

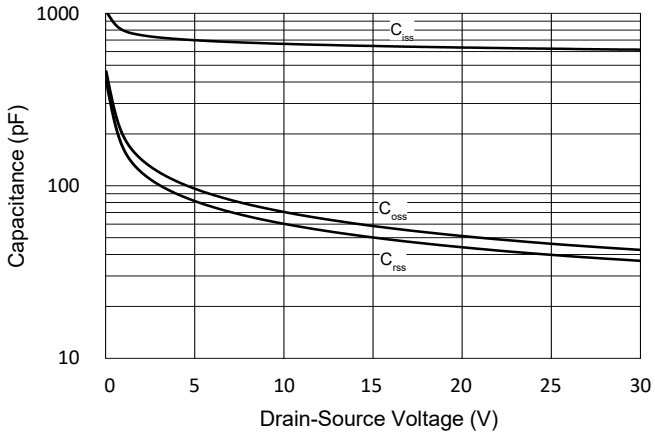
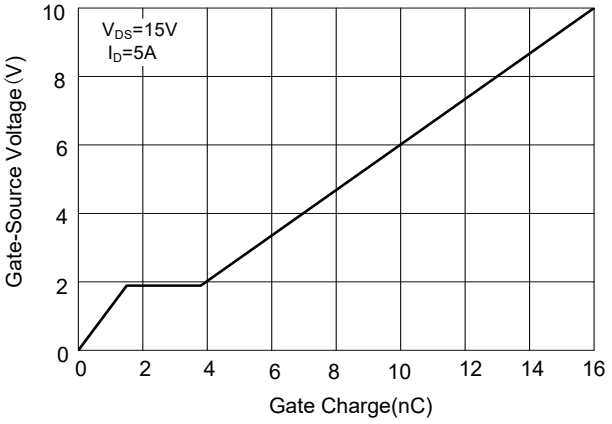


Fig.6 Gate Charge



Curve Characteristics

Fig.7 Normalized Threshold Voltage

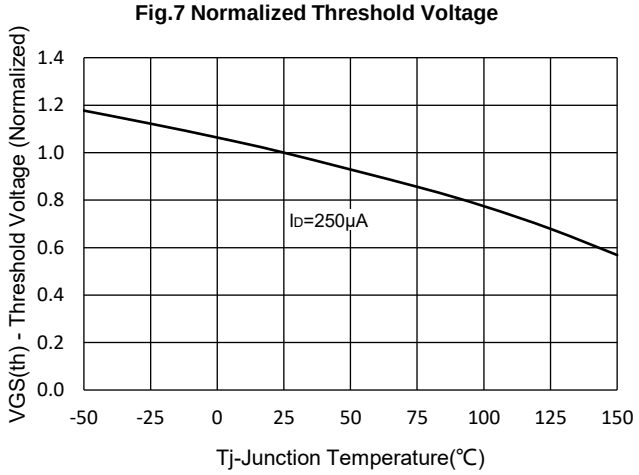


Fig.8 Normalized On Resistance Characteristics

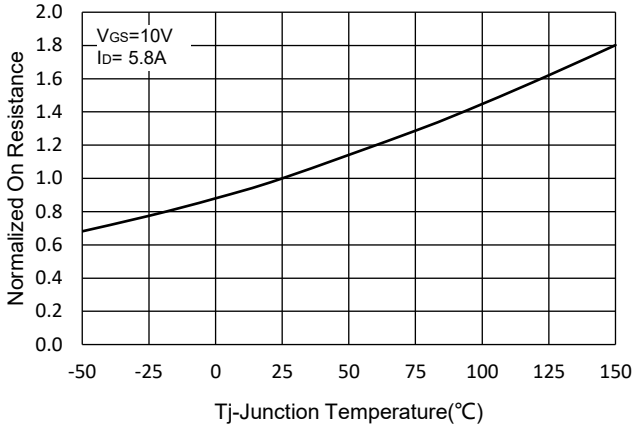


Fig.9 IS-VSD

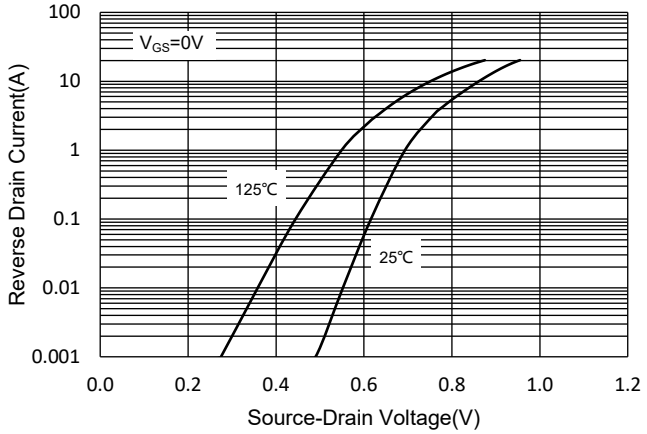


Fig.10 Drain Current

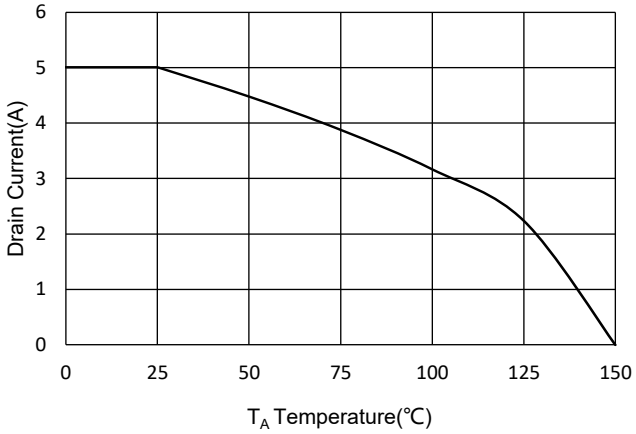
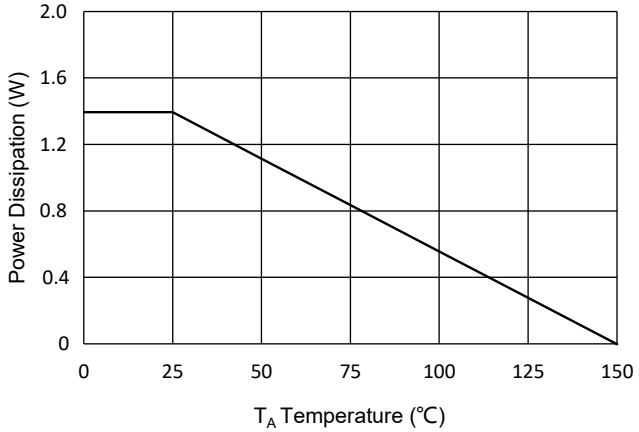


Fig.11 Power Dissipation



Curve Characteristics

Fig.12 Safe Operation Area

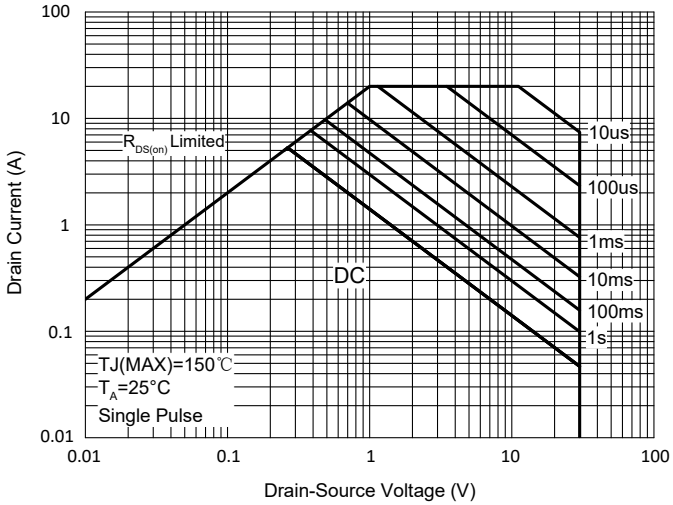
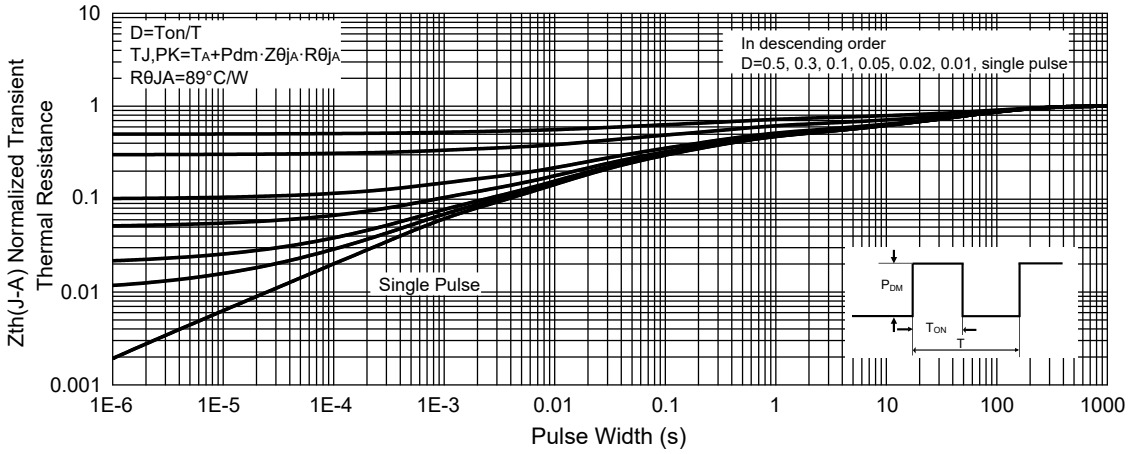


Fig.13 Normalized Transient Thermal Impedance



Ordering Information

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

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