Features

- Full Automotive Qualified To AEC-Q101
- Split Gate Trench MOSFET Technology
- Moisture Sensitivity Level 1
- Halogen Free. “Green” Device (Note 1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant (Note2)("P" Suffix Designates RoHS Compliant. See Ordering Information)

N-CHANNEL MOSFET

Maximum Ratings

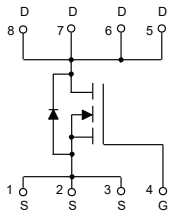
- Operating Junction Temperature Range : -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Thermal Resistance: 63°C/W Junction to Ambient(Note 3)
- Thermal Resistance: 1.5°C/W Junction to Case

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Volltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25°C	I_D	72	A
	T_C=100°C		50	
Pulsed Drain Current (Note4)		I_{DM}	288	A
Total Power Dissipation(Note5)		P_D	100	W
Single Pulse Avalanche Energy (Note6)		E_{AS}	112	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. High Temperature Solder Exemption Applied, see EU Directive Annex 7(a)-I.
3. The value of $R_{\theta JA}$ is measured with the device mounted on $1in^2$ FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.
4. Repetitive rating; pulse width limited by max. junction temperature.
5. P_D is based on max. junction temperature, using junction-case thermal resistance.
6. T_J=25°C,V_{DD}=50V, V_{GS}=10V, R_G=25Ω,L=1mH.

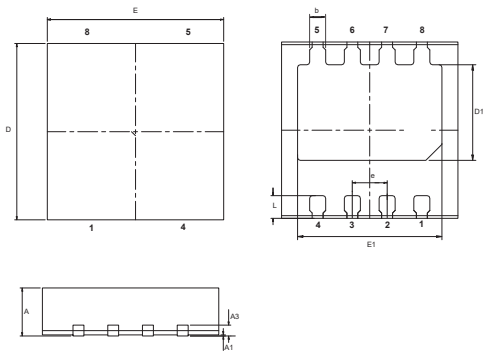
Internal Structure and Marking Code



pin1

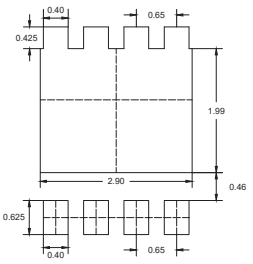
YYWW: 4 codes in total
YY is the year
WW is the week

DFN3333-8(SWF)



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.028	0.031	0.70	0.80	
A1	0.000	0.002	0.00	0.05	
A3	0.008		0.20		TYP.
b	0.010	0.014	0.25	0.35	
D	0.130		3.30		TYP.
E	0.130		3.30		TYP.
e	0.026		0.65		TYP.
D1	0.066	0.074	1.69	1.89	
E1	0.102	0.110	2.60	2.80	
L	0.013	0.021	0.325	0.525	

Suggested Solder Pad Layout



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	100			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V, V_{GS}=0V			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1.2	1.8	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=20A		7.5	9.4	mΩ
		V_{GS}=4.5V, I_D=15A		9.8	13	
Gate Resistance	R_g	f=1 MHz, Open Drain		1.6		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				72	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=2A			1.2	V
Reverse Recovery Time	t_{rr}	I_F=20A di/dt=100A/μs		37.8		ns
Reverse Recovery Charge	Q_{rr}			40.7		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=50V,V_{GS}=0V,f=1MHz		1312		pF
Output Capacitance	C_{oss}			554		
Reverse Transfer Capacitance	C_{rss}			10		
Total Gate Charge	Q_g	V_{DD}=50V,V_{GS}=10V,I_D=20A		23.3		nC
Gate-Source Charge	Q_{gs}			4.3		
Gate-Drain Charge	Q_{gd}			5.2		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=50V,V_{GS}=10V, I_D=20A R_G=3Ω		9.8		ns
Turn-On Rise Time	t_r			12.7		
Turn-Off Delay Time	$t_{d(off)}$			23.3		
Turn-Off Fall Time	t_f			7.0		

Curve Characteristics

Fig.1 - Typical Output Characteristics

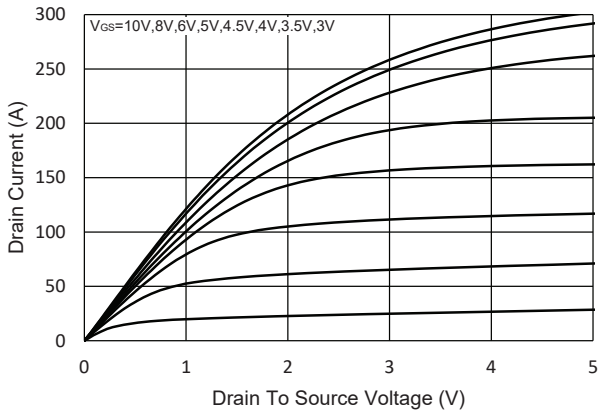


Fig.2 - Transfer Characteristics

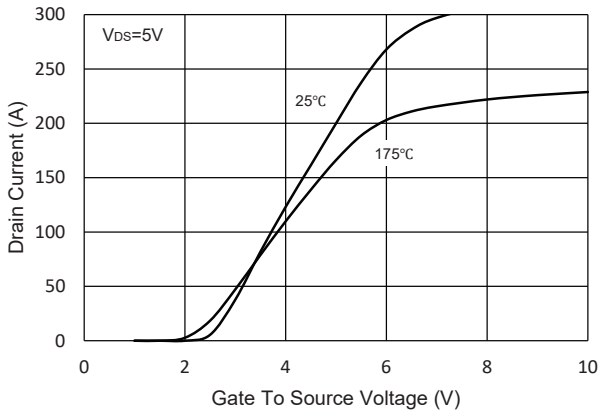


Fig.3 - $R_{DS(ON)}$ - V_{GS}

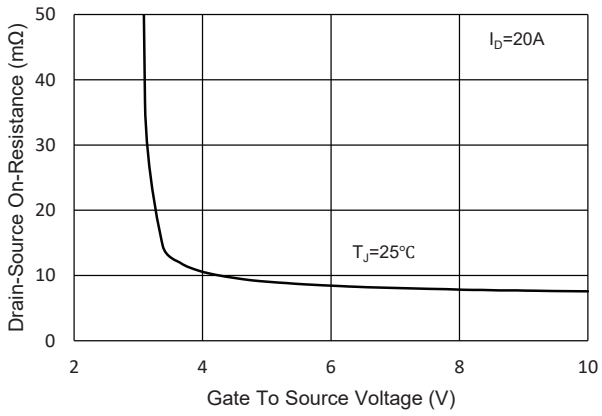


Fig. 4 - $R_{DS(ON)}$-I_D

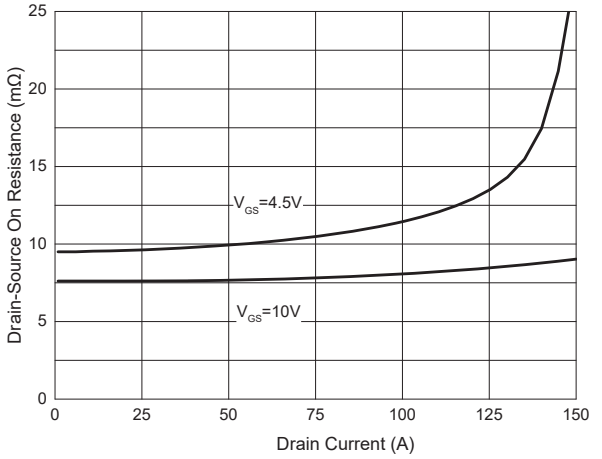


Fig.5 - Capacitance Characteristics

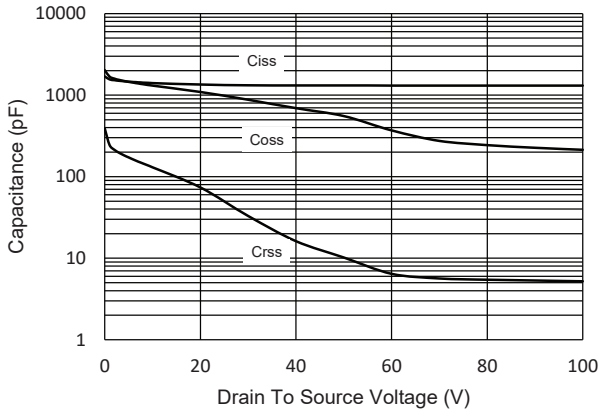
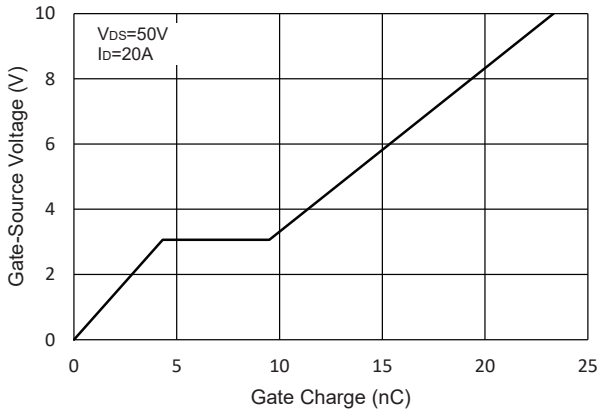


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

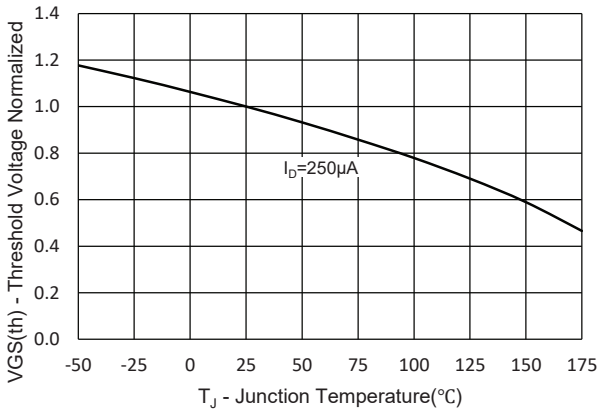


Fig.8 - Normalized On Resistance Characteristics

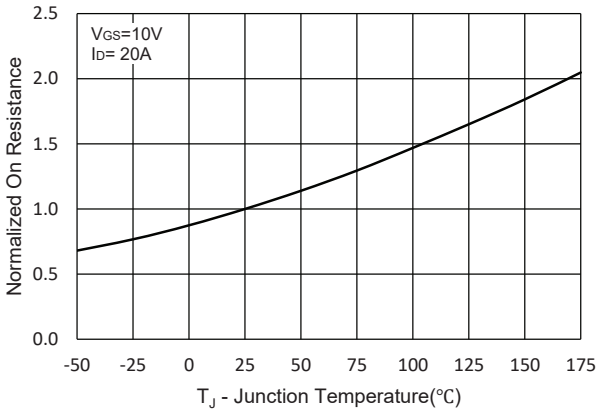


Fig. 9 - I_S-V_{SD}

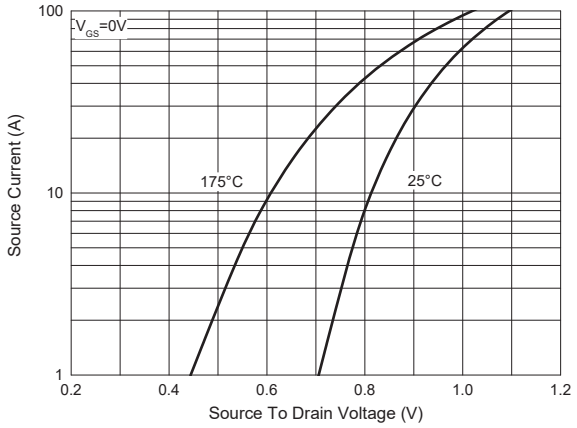


Fig.10 - Drain Current

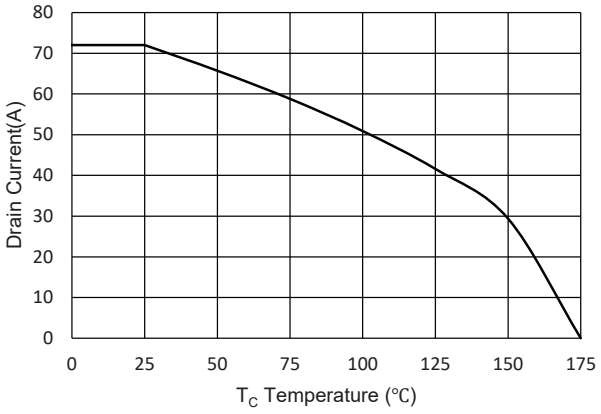
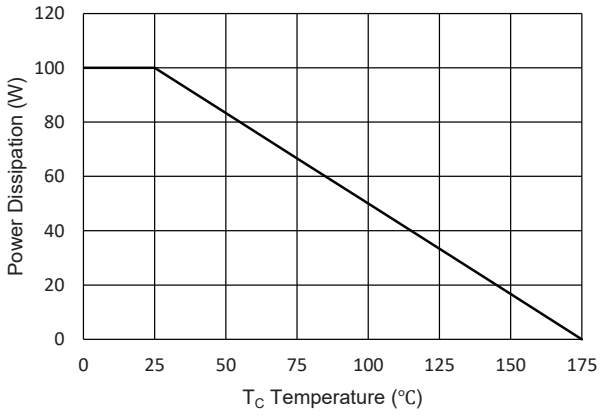


Fig.11 - PD Dissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

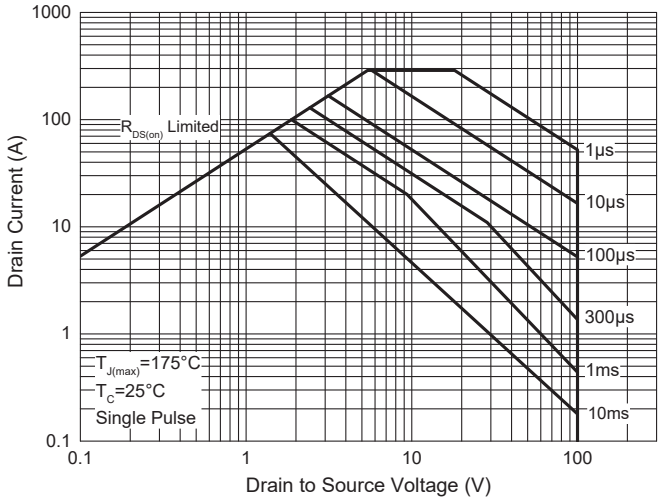
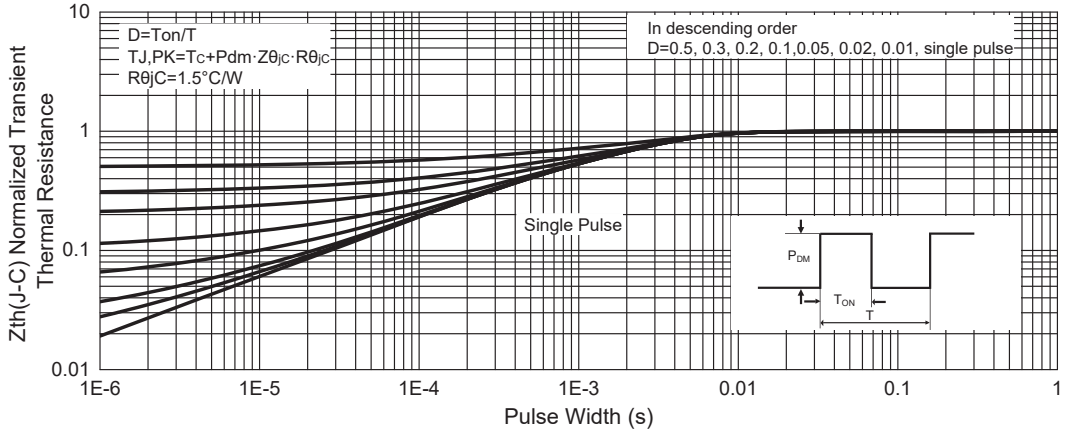


Fig. 13 - Normalized Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 5Kpcs/Reel