

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)

Maximum Ratings

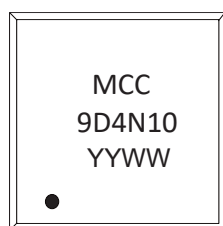
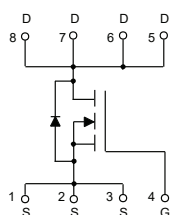
- Operating Junction Temperature Range : -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Thermal Resistance: 63°C/W Junction to Ambient (Note3)
- Thermal Resistance: 1.5°C/W Junction to Case

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	$T_C=25^\circ\text{C}$	72
		$T_C=100^\circ\text{C}$	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 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ\text{C}$.
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. $T_J=25^\circ\text{C}$, $V_{DD}=50\text{V}$, $V_{GS}=10\text{V}$, $R_G=25\Omega$, $L=1\text{mH}$.

Internal Structure and Marking Code

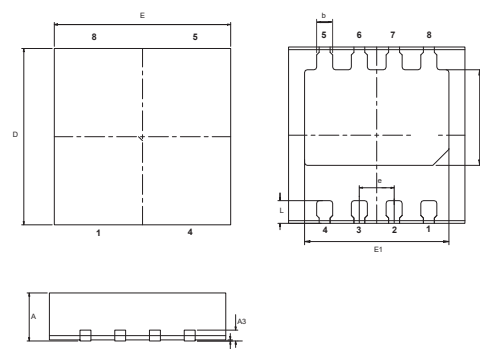


pin1

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

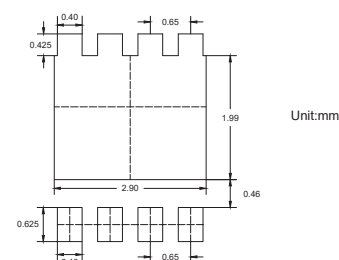
N-CHANNEL MOSFET

DFN3333-8(SWF)



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

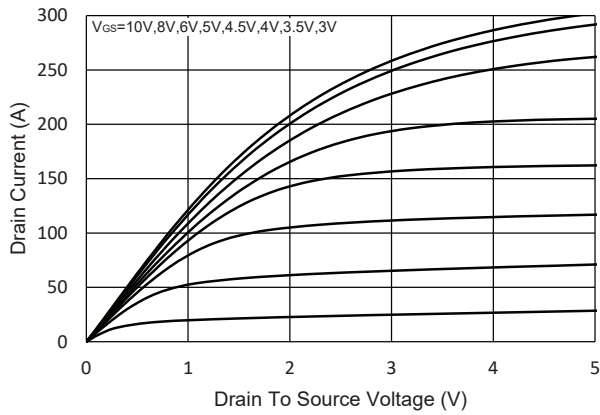


Fig.2 - Transfer Characteristics

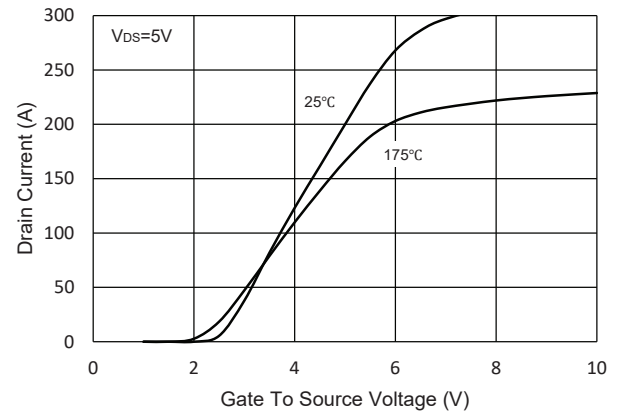


Fig.3 - $R_{DS(ON)} - V_{GS}$

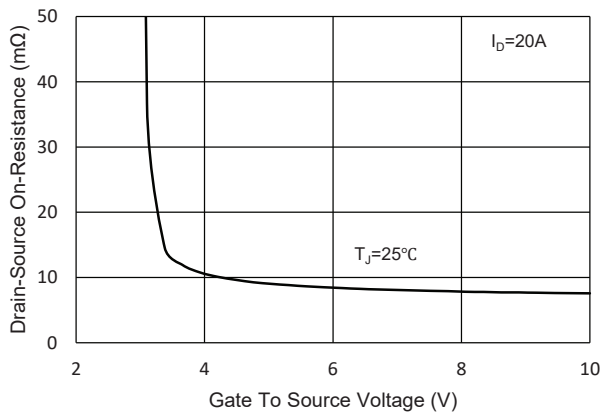


Fig. 4 - $R_{DS(ON)} - I_D$

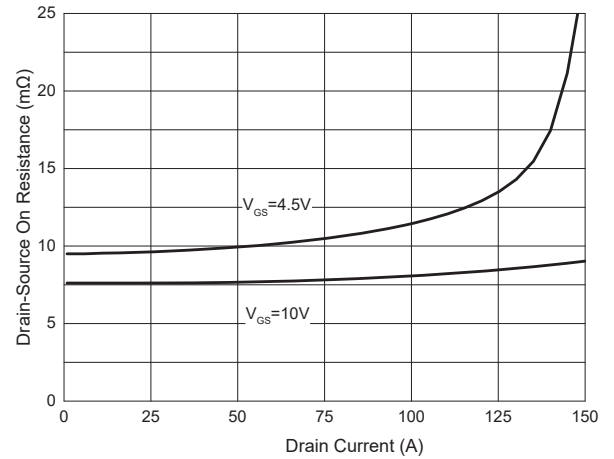


Fig.5 - Capacitance Characteristics

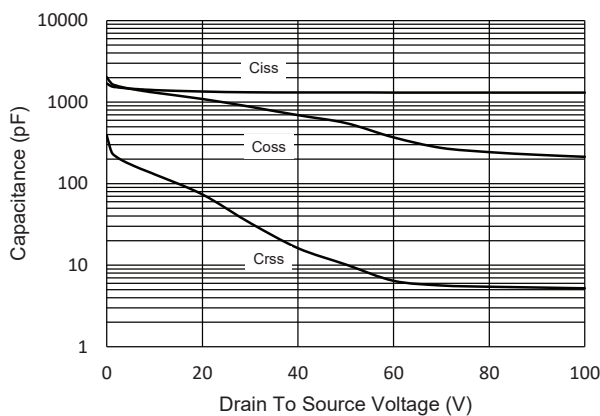
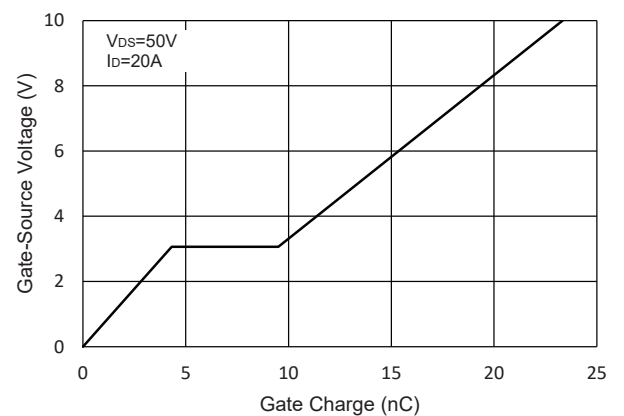


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

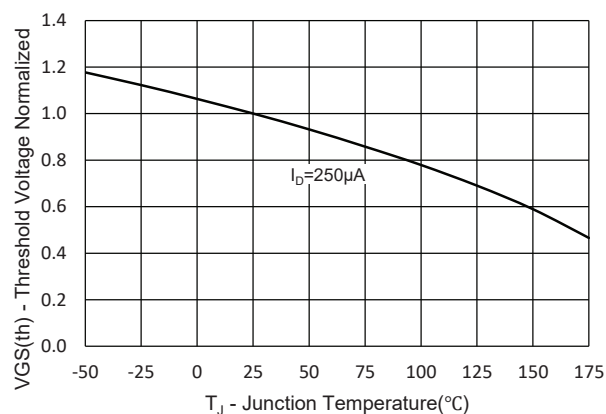


Fig.8 - Normalized On Resistance Characteristics

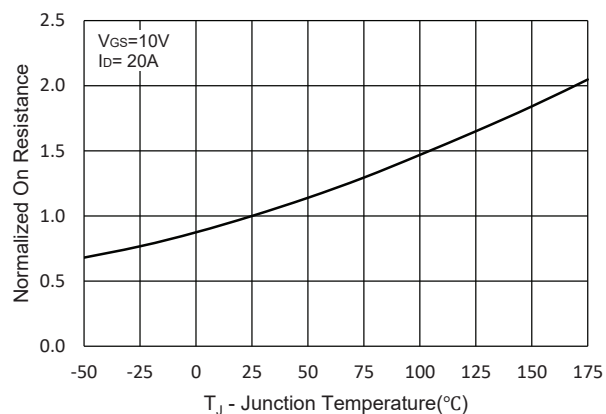


Fig. 9 - $I_S - V_{SD}$

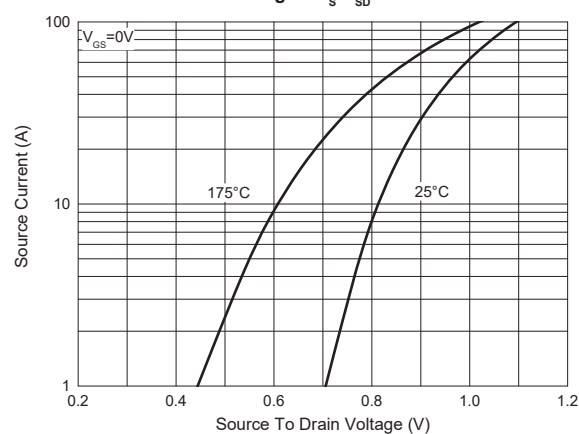


Fig.10 - Drain Current

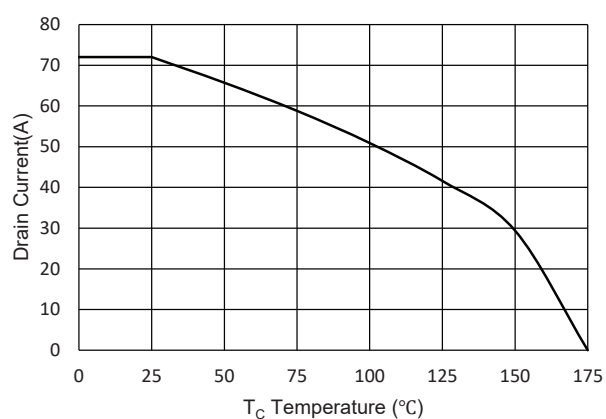
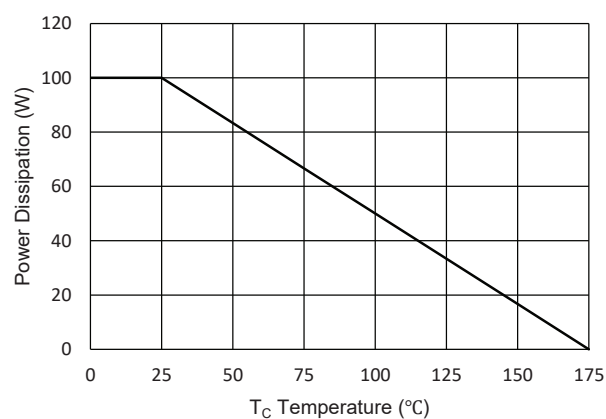


Fig.11 - PD Dissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

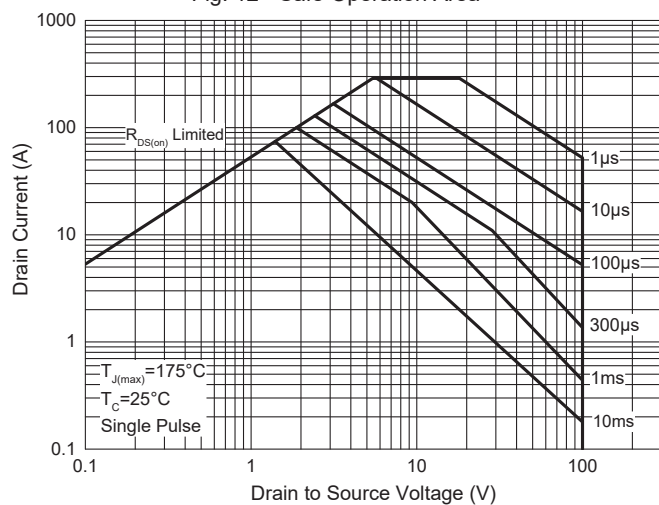
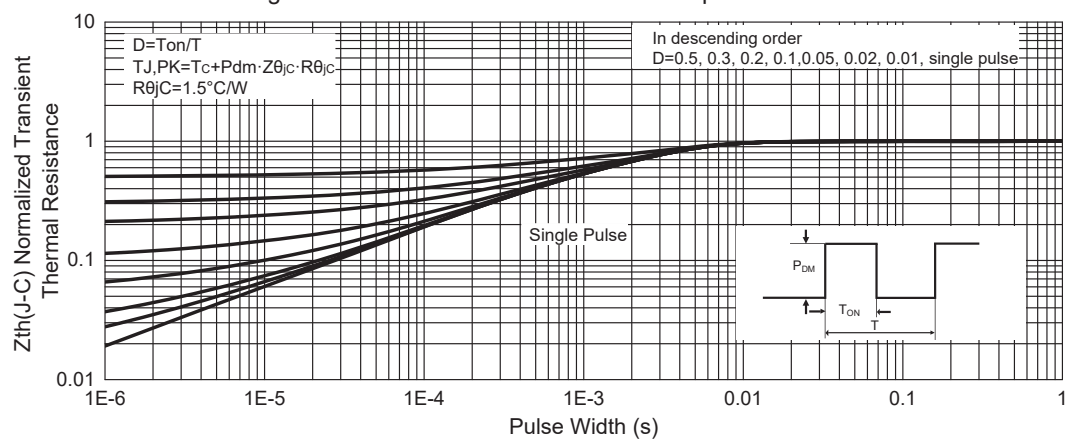


Fig. 13 - Normalized Transient Thermal Impedance



Ordering Information

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

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