

Features

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

Maximum Ratings

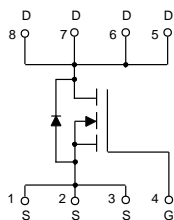
- Operating Junction Temperature Range : -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Maximum Thermal Resistance: 7.5°C/W Junction to Case^(Note 2)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	$T_C=25^\circ\text{C}$	I_D 30	A
	$T_C=100^\circ\text{C}$	21	
Pulsed Drain Current ^(Note 3)	I_{DM}	100	A
Total Power Dissipation	$T_C=25^\circ\text{C}$	P_D 20	W
	$T_C=100^\circ\text{C}$	10	
Single Pulse Avalanche Energy ^(Note 4)	E_{AS}	128	mJ

Note:

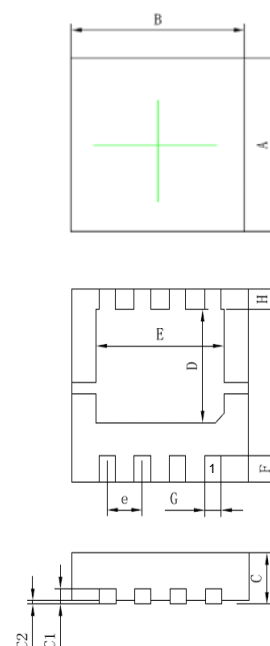
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The Maximum Rating Presented Here is Based on Mounting on a 1in² Pad of 2oz Copper.
3. Pulse Test: Pulse Width ≤ 300us, Duty Cycle ≤ 2%.
4. $T_J=25^\circ\text{C}$, $V_{DD}=20\text{V}$, $V_G=10\text{V}$, $L=0.5\text{mH}$, $R_G=25\Omega$

Internal Structure



N-CHANNEL MOSFET

DFN3333



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.00	0.00	0.00	0.00	
B	0.00	0.00	0.00	0.00	
C	0.00	0.00	0.00	0.00	
ØF	0.00	0.00	0.00	0.00	
ØG	0.00	0.00	0.00	0.00	
Ø	0.00	0.00	0.00	0.00	
Ø	0.00	0.00	0.00	0.00	
Ø	0.00	0.00	0.00	0.00	
Ø	0.00	0.00	0.00	0.00	
Ø	0.00	0.00	0.00	0.00	
P	0.01	0.01	0.01	0.01	
Λ	0.02	0.02	0.02	0.02	

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} =± 20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V,T _J =25°C			1	μA
		V _{DS} =30V, V _{GS} =0V,T _J =55°C			5	
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	1.5	2.5	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =15A		8	10	mΩ
		V _{GS} =4.5V, I _D =15A		10	13	
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =15A		0.85	1.2	V
Maximum Body-Diode Continuous Current	I _S				30	A
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =15V,V _{GS} =0V,f =1MHz		1020		pF
Output Capacitance	C _{oss}			225		
Reverse Transfer Capacitance	C _{rss}			126		
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} =15V,V _{GS} =10V,I _D =30A		28		nC
Gate-Source Charge	Q _{gs}			7		
Gate-Drain Charge	Q _{gd}			5		
Reverse Recovery Chrage	Q _{rr}	I _F =15A, di/dt=100A/μs		25		
Reverse Recovery Time	t _{rr}			26		
Turn-On Delay Time	t _{d(on)}	V _{GS} =10V,V _{DS} =20V,I _D =2A, R _L =1Ω, R _{GEN} =3Ω		8		ns
Turn-On Rise Time	t _r			15		
Turn-Off Delay Time	t _{d(off)}			27		
Turn-Off Fall Time	t _f			7		

Fig. 1 - Output Characteristics

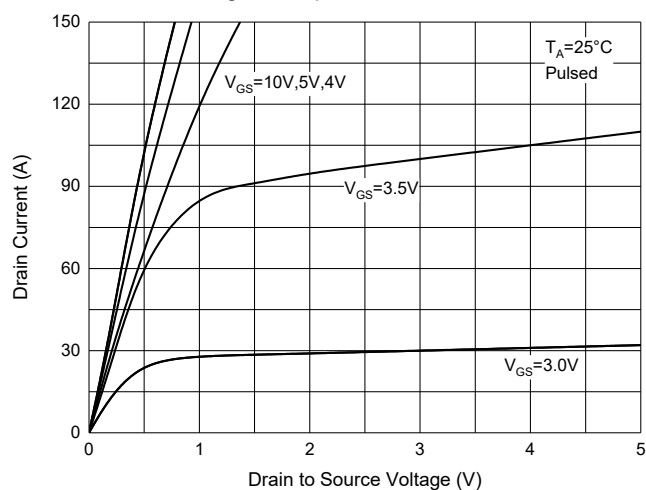


Fig. 2 - Transfer Characteristics

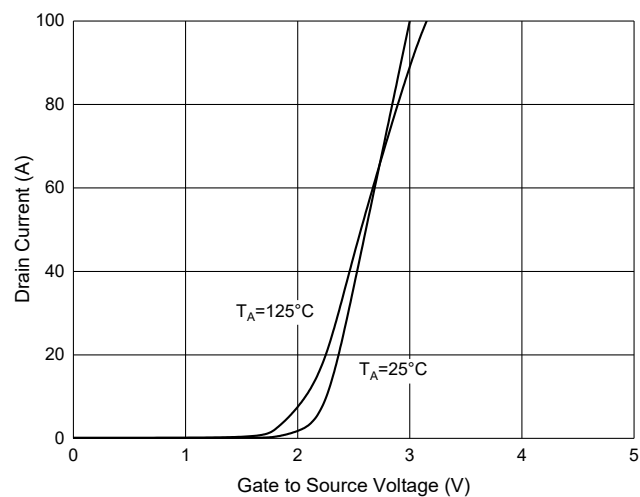


Fig. 4 - Gate Charge

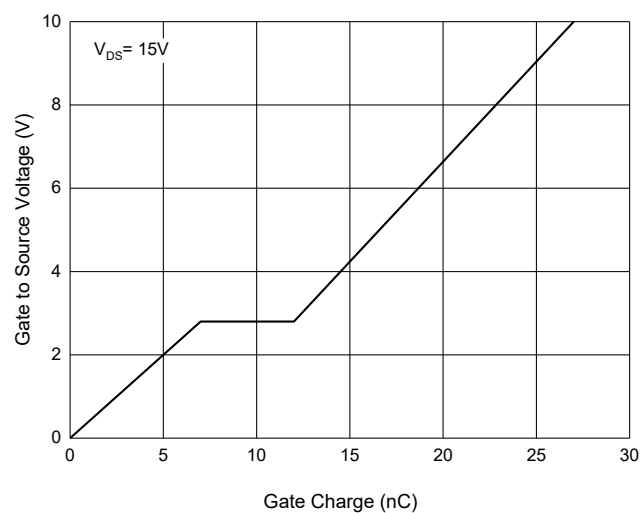


Fig. 3 - Capacitance Characteristics

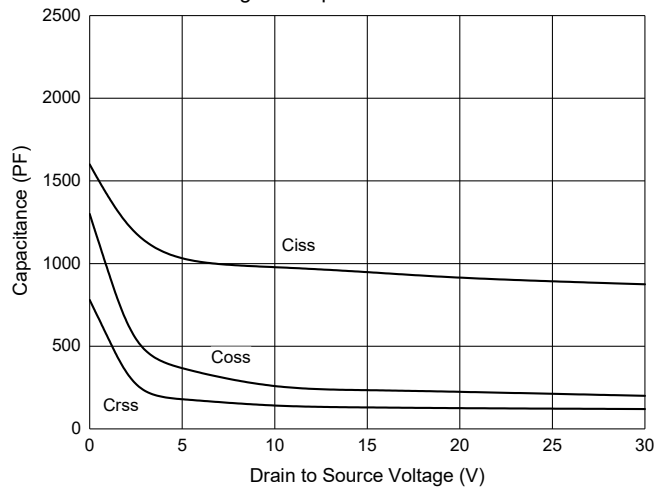


Fig. 5 - $R_{DS(ON)} - I_D$

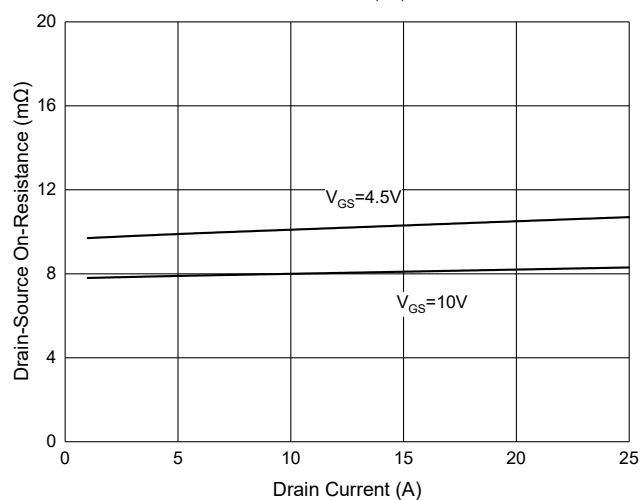
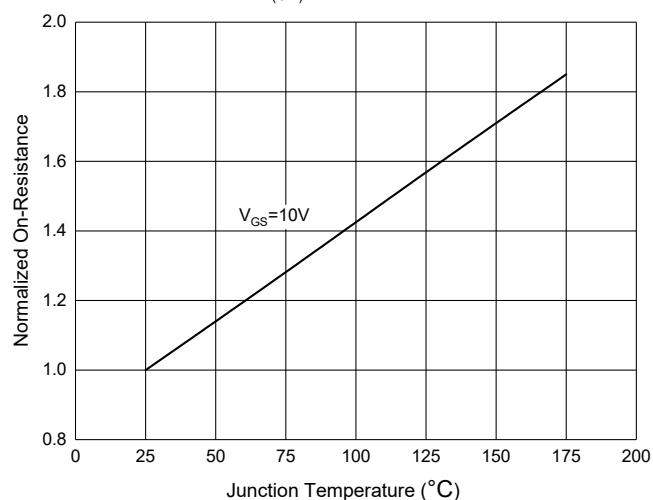


Fig. 6 - $R_{DS(ON)} - \text{Temperature}$



Ordering Information

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

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