

Features

- Trench Power LV MOSFET Technology
- Excellent Package for Heat Dissipation
- High Density Cell Design for Low $R_{DS(on)}$
- 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)

Maximum Ratings

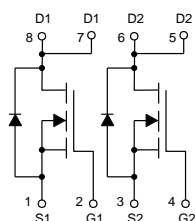
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 41.5°C/W Junction to Ambient ⁽²⁾

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	25	A
Pulsed Drain Current ⁽³⁾	I_{DM}	100	A
Total Power Dissipation	P_D	3	W

Note:

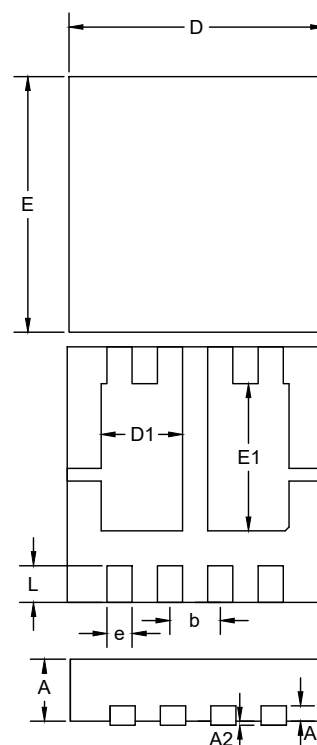
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Repetitive Rating: Pulse width limited by maximum junction temperature.

Internal Structure



Dual N-CHANNEL MOSFET

DFN3333-D



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.030	0.033	0.750	0.850	
A1	0.008		0.200		TYP
A2	-	0.002	-	0.050	
D	0.128	0.132	3.250	3.350	
E	0.128	0.132	3.250	3.350	
D1	0.039	0.043	1.000	1.100	
E1	0.073	0.077	1.850	1.950	
e	0.026		0.650		BSC
b	0.012	0.014	0.300	0.350	
L	0.017	0.021	0.425	0.525	

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	40			V
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =40V, V _{GS} =0V			1	μA
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 =8A		14	18	mΩ
		V _{GS} =4.5V, I _D =4A		18	24	mΩ
Diode Characteristics						
Continuous Body Diode Current	I _S				25	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =10A			1.2	V
Reverse Recovery Time	t _{rr}	I _S =10A, di/dt=100A/μs		29		ns
Reverse Recovery Charge	Q _{rr}			26		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =20V, V _{GS} =0V, f=1MHz		750		pF
Output Capacitance	C _{oss}			150		
Reverse Transfer Capacitance	C _{rss}			80		
Total Gate Charge	Q _g	V _{DS} =20V, V _{GS} =10V, I _D =10A		15		nC
Gate-Source Charge	Q _{gs}			3		
Gate-Drain Charge	Q _{gd}			2.5		
Turn-On Delay Time	t _{d(on)}	V _{DS} =20V, V _{GEN} =10V, R _G =3Ω, R _L =1Ω, I _{DS} =2A		6		ns
Turn-On Rise Time	t _r			17.5		
Turn-Off Delay Time	t _{d(off)}			31		
Turn-Off Fall Time	t _f			17		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

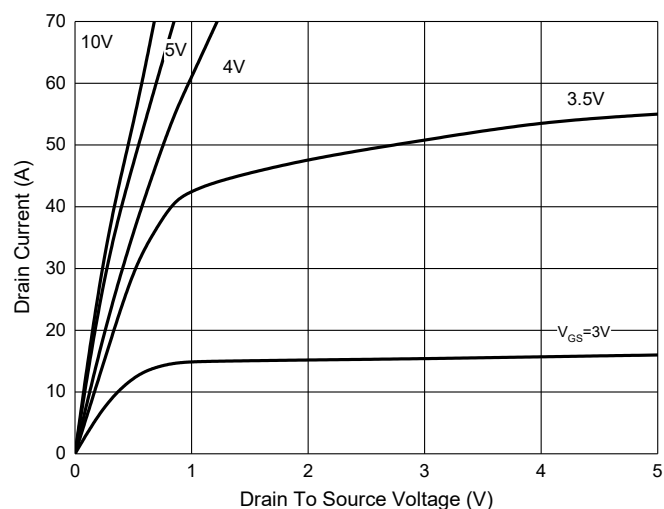


Fig. 2 - Transfer Characteristics

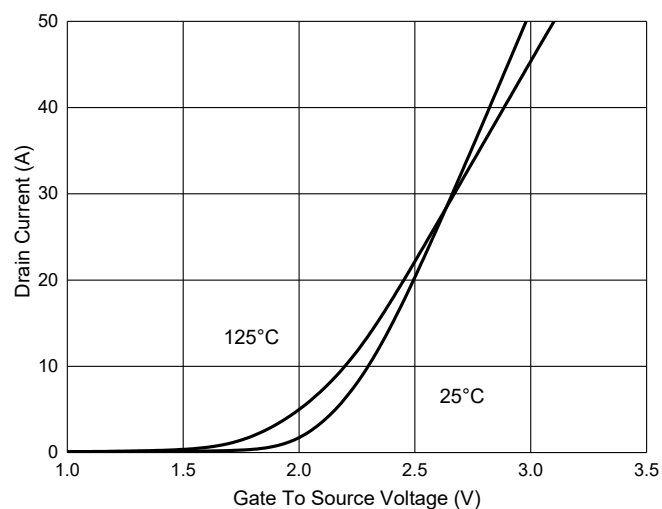


Fig. 3 - $R_{DS(ON)}-I_D$

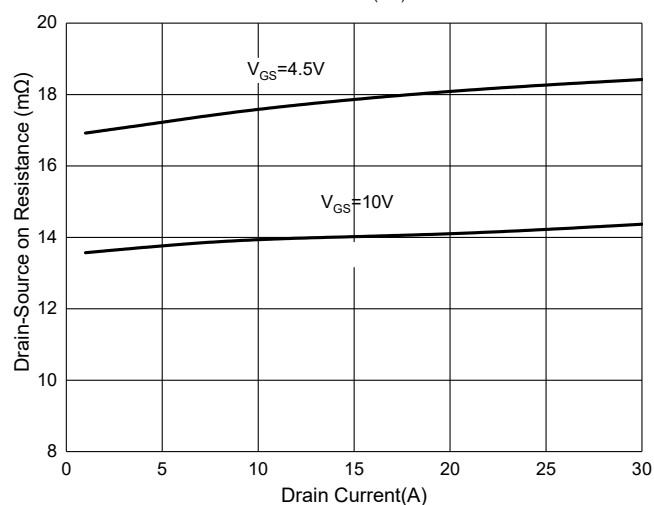


Fig. 4 - Normalized On Resistance Characteristics

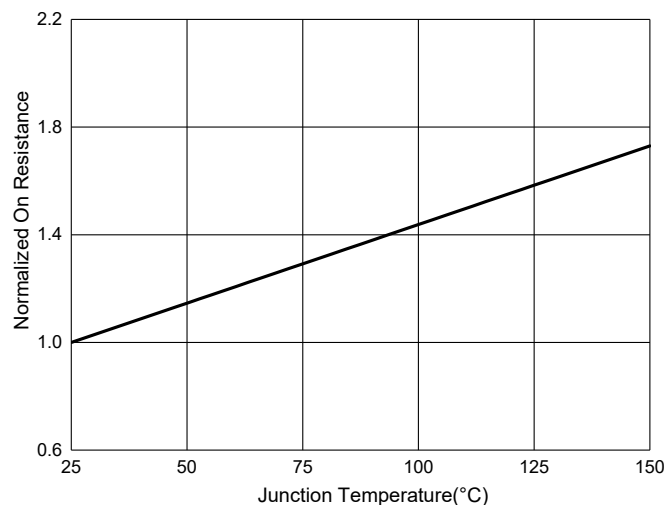


Fig. 5 - Capacitance Characteristics

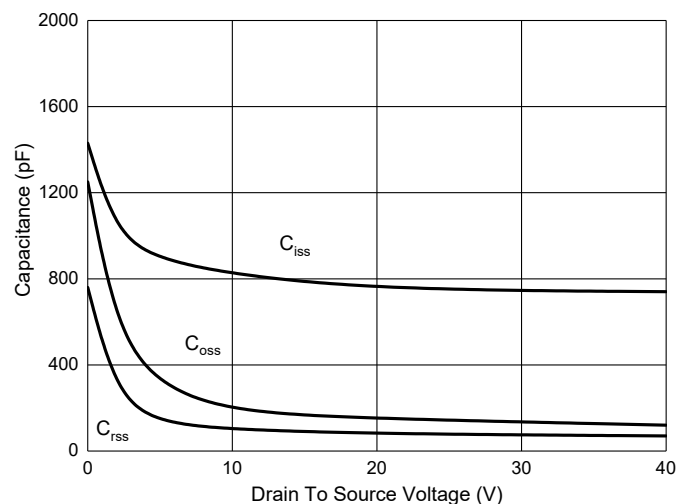
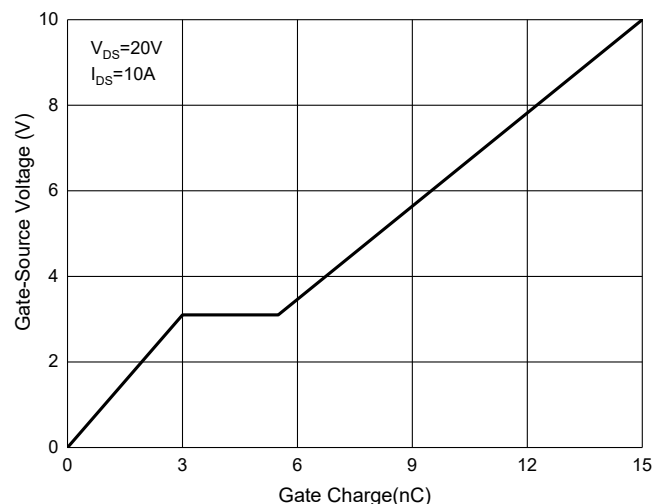
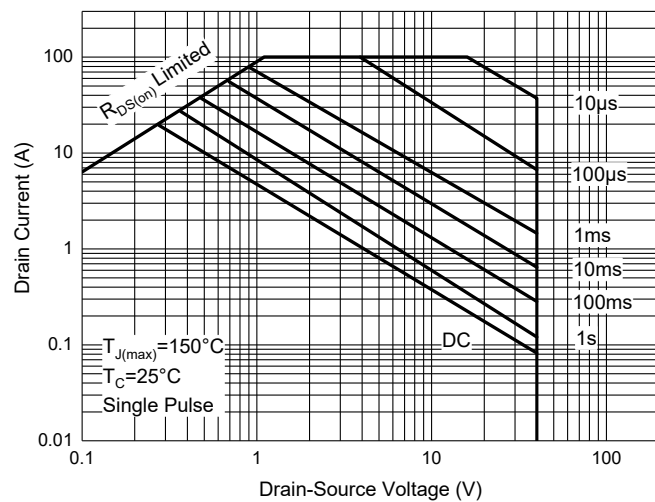


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Safe Operation Area



Ordering Information

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

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