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)
- Moisture Sensitivity Level 1

P-CHANNEL MOSFET

Maximum Ratings

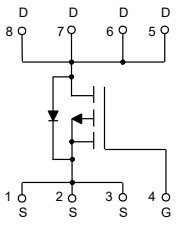
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 3.3°C/W Junction to Case(2)
- Thermal Resistance: 39°C/W Junction to Ambient(2)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Volltage		V_{GS}	±10	V
Continuous Drain Current		I_D	-55	A
Pulsed Drain Current(3)		I_{DM}	-160	A
Total Power Dissipation	T_C=25°C	P_D	38	W
	T_A=25°C		3.2	W
Single Pulsed Avalanche Energy		E_{AS}	75	mJ

Note:

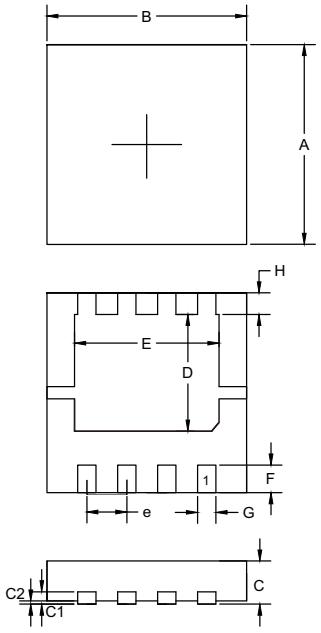
1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance, where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design, while $R_{\theta JA}$ is determined by the board design. The maximum rating presented here is based on mounting on a 1 in^2 pad of 2oz copper.
3. Pulse Test: Pulse Width≤300us,Duty cycle ≤2%.

Internal Structure and Marking Code



pin1

DFN3333



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.126	0.130	3.20	3.30	
B	0.126	0.130	3.20	3.30	
C	0.030	0.033	0.75	0.85	
C1	0.007	0.009	0.18	0.22	
C2	---	0.002	---	0.05	
D	0.071	0.079	1.80	2.00	
E	0.087	0.098	2.20	2.50	
F	0.016	0.020	0.40	0.50	
G	0.010	0.014	0.25	0.35	
H	0.012	0.016	0.30	0.40	
e	0.024	0.028	0.60	0.70	

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	-20			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±10V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V, V_{GS}=0V			-1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-0.4	-0.62	-1.0	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=-4.5V, I_D=-15A		6.5	8.3	mΩ
		V_{GS}=-2.5V, I_D=-10A		8	10	mΩ
		V_{GS}=-1.8V, I_D=-8A		10.3	15	mΩ
Diode Characteristics						
Continuous Body Diode Current	I_S				-55	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=-20A			-1.3	V
Reverse Recovery Time	t_{rr}	I_F=-6A, dI_F/dt=100A/μs		46		ns
Reverse Recovery Charge	Q_{rr}			25.2		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=-10V,V_{GS}=0V,f=1MHz		6358		pF
Output Capacitance	C_{oss}			690		
Reverse Transfer Capacitance	C_{rss}			477		
Total Gate Charge	Q_g	V_{DS}=-15V,V_{GS}=-10V,I_D=-9.1A		149		nC
Gate-Source Charge	Q_{gs}			12.7		
Gate-Drain Charge	Q_{gd}			21		
Turn-On Delay Time	$t_{d(on)}$	V_{DS}=-15V, V_{GEN}=-10V, R_G=2.5Ω, I_{DS}=-6A		11		ns
Turn-On Rise Time	t_r			36		
Turn-Off Delay Time	$t_{d(off)}$			182		
Turn-Off Fall Time	t_f			191		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

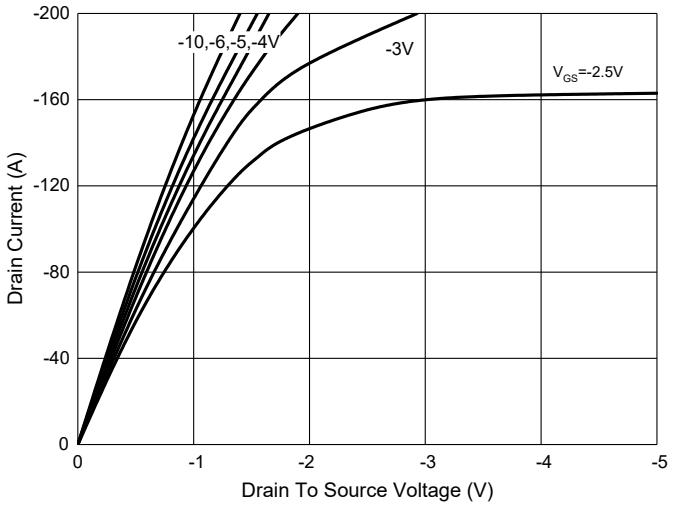


Fig. 2 - Transfer Characteristics

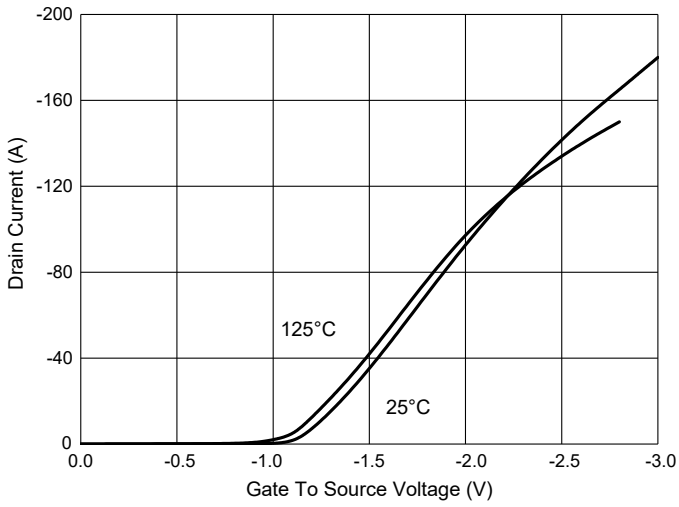


Fig. 3 - $R_{DS(ON)}$—I_D

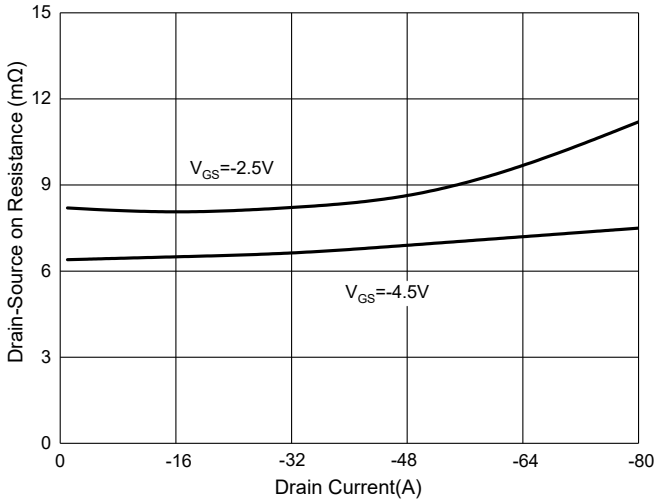


Fig. 4 - Normalized On Resistance Characteristics

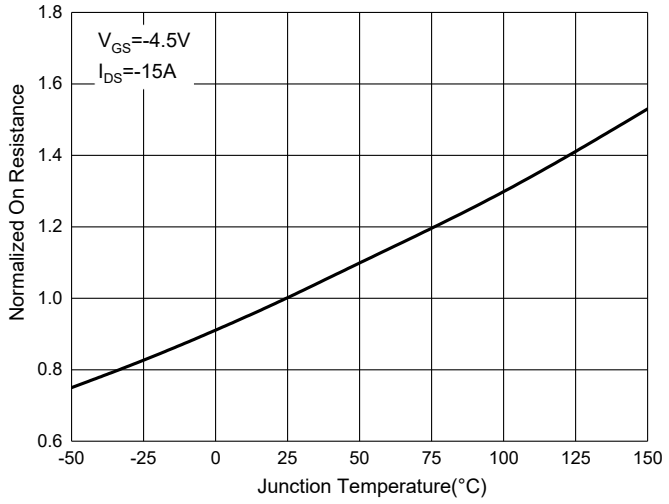


Fig. 5 - Capacitance Characteristics

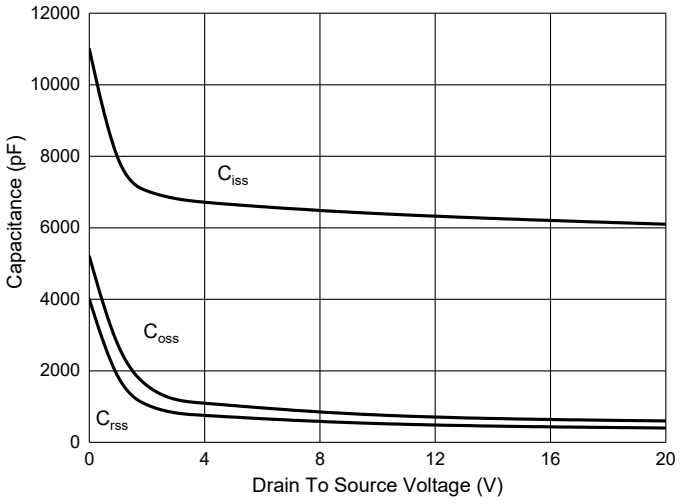
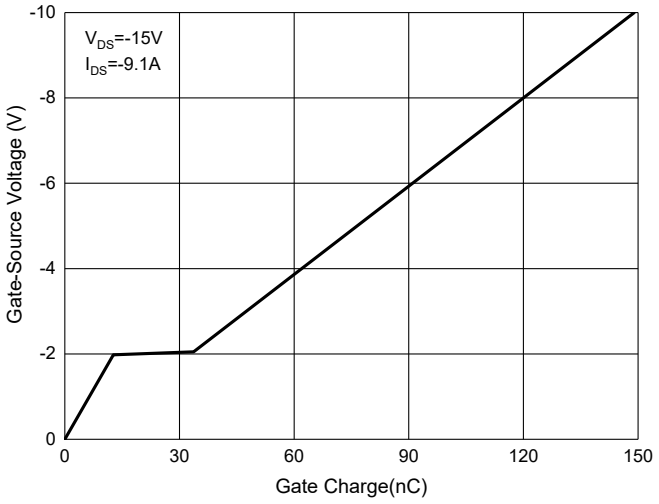


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Safe Operation Area

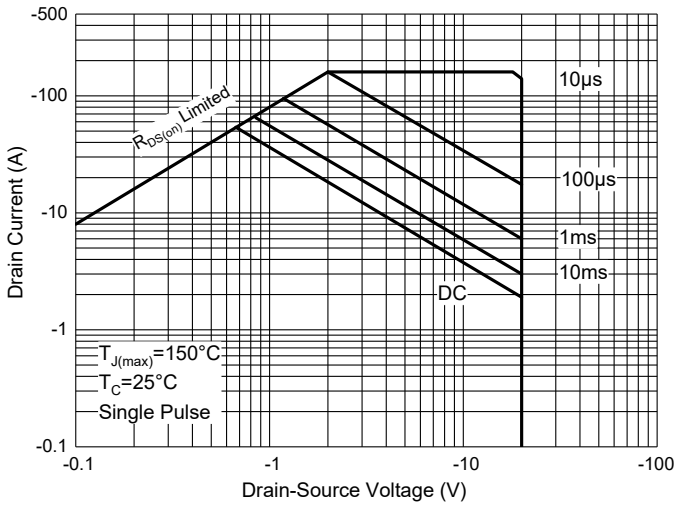
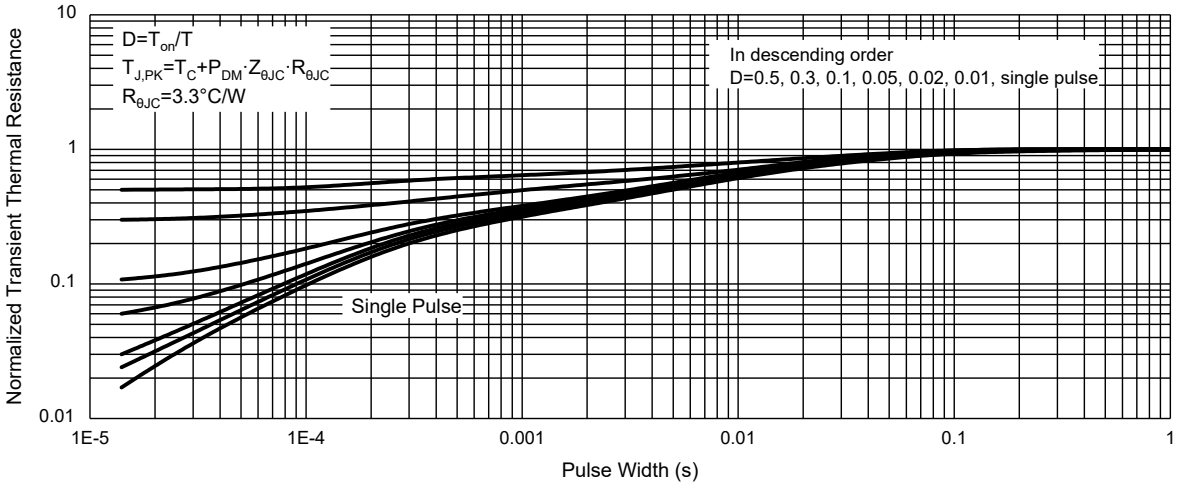


Fig. 8 - Normalized Maximum Transient Thermal Impedance



Ordering Information

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