

Features

- Trench Power LV MOSFET Technology
- High Density Cell Design for Low $R_{DS(ON)}$
- High Speed Switching
- 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

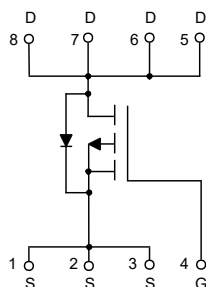
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 17°C/W Junction to Ambient ⁽²⁾
- Thermal Resistance: 1.5°C/W Junction to Case ⁽²⁾

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±25	V
Continuous Drain Current	I_D	-50	A
Pulsed Drain Current ⁽³⁾	I_{DM}	-210	A
Total Power Dissipation	P_D	83	W
Single Pulsed Avalanche Energy ⁽⁴⁾	E_{AS}	360	mJ

Note:

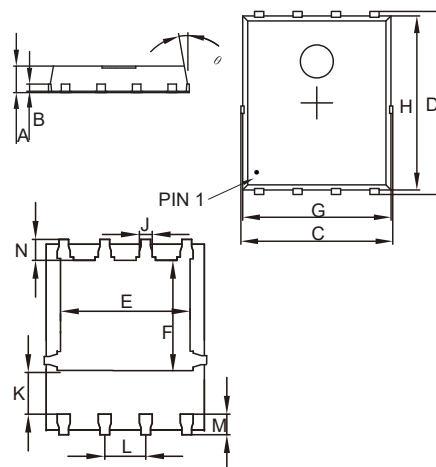
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance, where the case thermal reference is defined as 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 in² pad of 2oz copper.
3. Pulse Test: Pulse Width ≤ 300us, Duty cycle ≤ 2%.
4. $T_J = 25^\circ\text{C}$, $V_{DD} = -25\text{V}$, $V_G = -10\text{V}$, $L = 2\text{mH}$.

Internal Structure



P-CHANNEL MOSFET

DFN5060



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.031	0.047	0.80	1.20	
B	0.010		0.254		TYP.
C	0.193	0.222	4.90	5.64	
D	0.232	0.250	5.90	6.35	
E	0.148	0.167	3.75	4.25	
F	0.126	0.154	3.20	3.92	
G	0.189	0.213	4.80	5.40	
H	0.222	0.239	5.65	6.06	
K	0.045	0.059	1.15	1.50	
J	0.012	0.020	0.30	0.50	
L	0.046	0.054	1.17	1.37	
M	0.012	0.028	0.30	0.71	
N	0.016	0.028	0.40	0.71	

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} =±25V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-30V, V _{GS} =0V			-1	μA
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1.2	-1.8	-2.8	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-20A		4	5.5	mΩ
		V _{GS} =-4.5V, I _D =-20A		6	9.5	mΩ
Gate Resistance	R _g	Drain open, f=1Mhz		6.5		Ω
Diode Characteristics						
Continuous Body Diode Current	I _S				-50	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =-20A			-1.2	V
Reverse Recovery Time	t _{rr}	I _S =-15A, di/dt=100A/μs		24		ns
Reverse Recovery Charge	Q _{rr}			8.5		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V, f=1MHz		6464		pF
Output Capacitance	C _{oss}			779		
Reverse Transfer Capacitance	C _{rss}			477		
Total Gate Charge	Q _g	V _{DS} =-15V, V _{GS} =-10V, I _D =-20A		111.7		nC
Gate-Source Charge	Q _{gs}			21.1		
Gate-Drain Charge	Q _{gd}			22.9		
Turn-On Delay Time	t _{d(on)}	V _{DS} =-15V, V _{GS} =-10V, R _G =3Ω, R _L =0.75Ω		15		ns
Turn-On Rise Time	t _r			75		
Turn-Off Delay Time	t _{d(off)}			130		
Turn-Off Fall Time	t _f			80		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

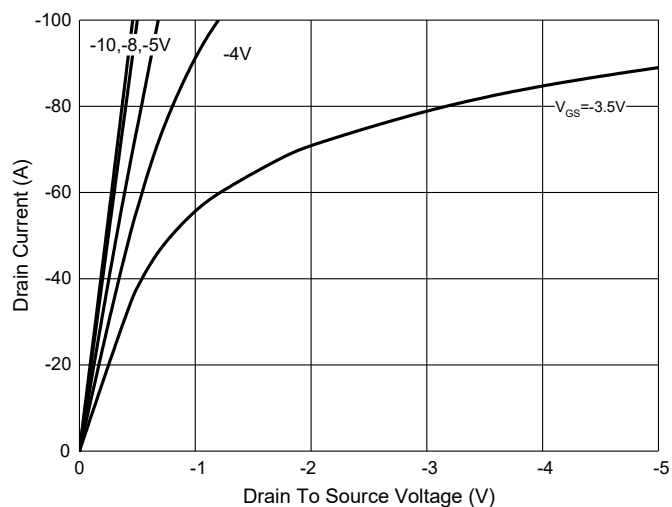


Fig. 2 - Transfer Characteristics

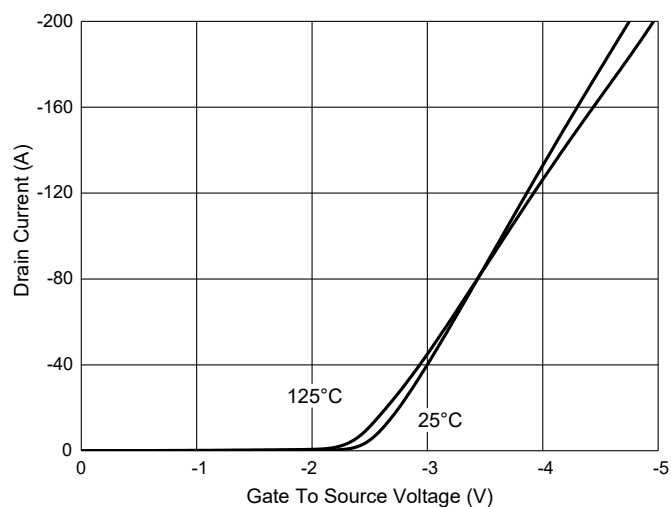


Fig. 3 - $R_{DS(ON)} - I_D$

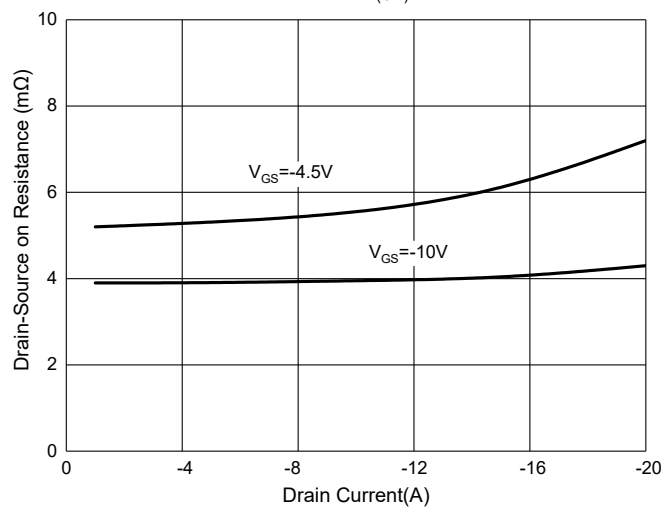


Fig. 4 - Normalized On Resistance Characteristics

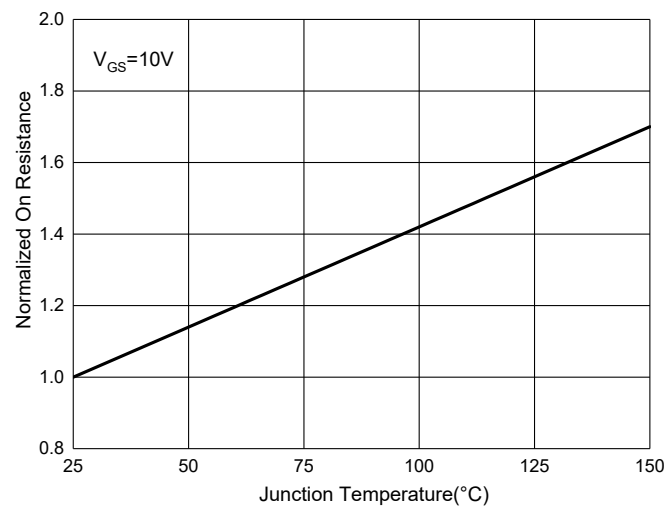


Fig. 5 - Capacitance Characteristics

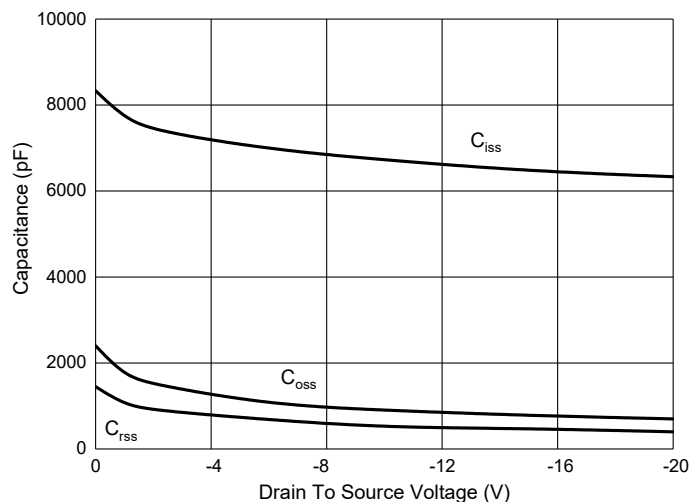
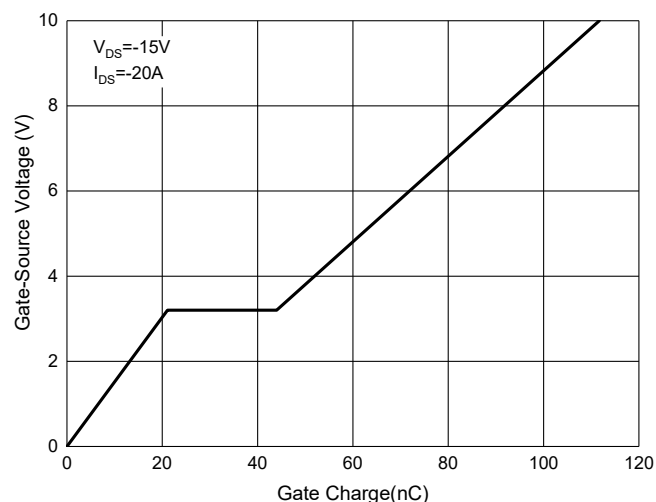


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Safe Operation Area

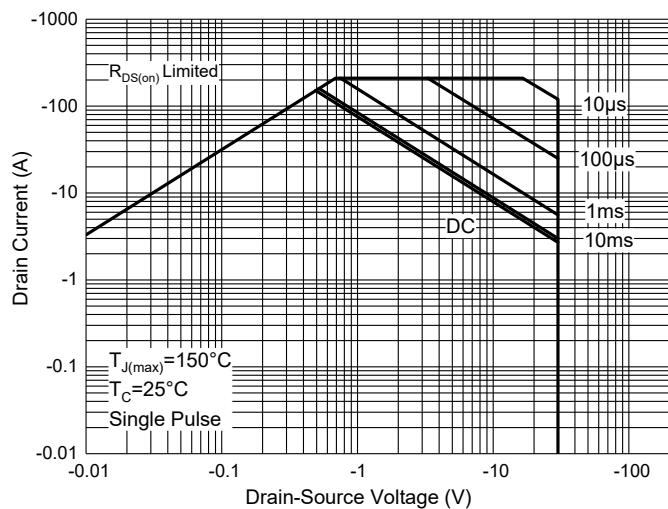
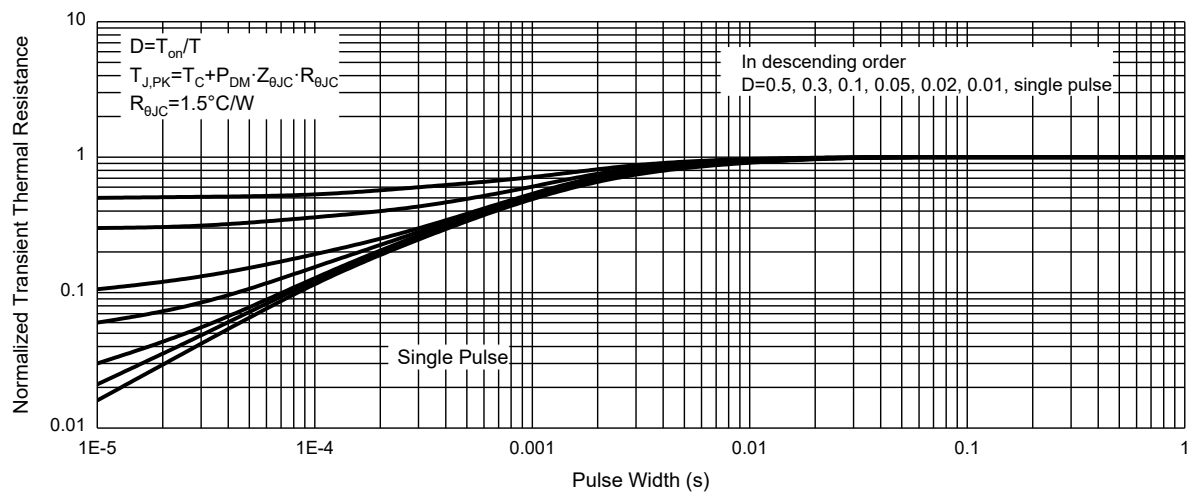


Fig. 8 - Normalized Transient Thermal Impedance



Ordering Information

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

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