

Features

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

Maximum Ratings

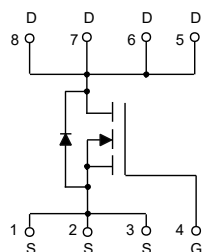
- Operating Junction Temperature Range : -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Thermal Resistance: 2.73°C/W Junction to Case

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V _{DS}	40	V
Gate-Source Voltage		V _{GS}	±20	V
Continuous Drain Current	T _C =25°C	I _D	90	A
	T _C =100°C		63	A
Pulsed Drain Current ^(Note 2)		I _{DM}	340	A
Avalanche Energy ^(Note 3)		E _{AS}	220	mJ
Total Power Dissipation		P _D	55	W

Note:

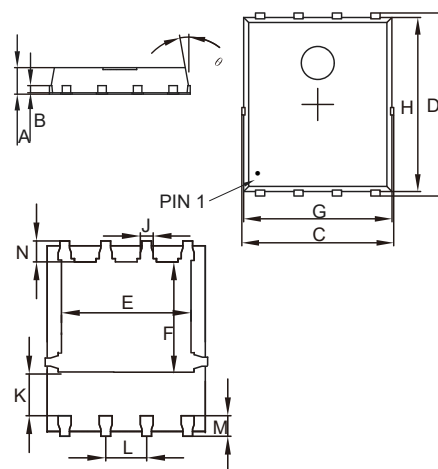
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
3. $T_J=25^\circ\text{C}$, $V_{DD}=20\text{V}$, $V_G=10\text{V}$, $L=0.5\text{mH}$, $R_G=25\Omega$.

Internal Structure



N-CHANNEL MOSFET

DFN5060



DIMENSIONS					
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	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	0.7	1.2	2	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A		3.5	4.5	mΩ
		V _{GS} =4.5V, I _D =20A		4.4	6.5	mΩ
Diode Characteristics						
Continuous Body Diode Current	I _S				90	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =20A			1.2	V
Reverse Recovery Time	t _{rr}	I _S =25A, di/dt=100A/μs		35		ns
Reverse Recovery Charge	Q _{rr}			40		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =20V, V _{GS} =0V, f=1MHz		2420		pF
Output Capacitance	C _{oss}			440		
Reverse Transfer Capacitance	C _{rss}			230		
Total Gate Charge	Q _g	V _{DS} =20V, V _{GS} =10V, I _D =20A		95		nC
Gate-Source Charge	Q _{gs}			22		
Gate-Drain Charge	Q _{gd}			19		
Turn-On Delay Time	t _{d(on)}	V _{DS} =20V, V _{GS} =10V, R _G =3Ω, R _L =1Ω, I _{DS} =2A		15		ns
Turn-On Rise Time	t _r			18		
Turn-Off Delay Time	t _{d(off)}			45		
Turn-Off Fall Time	t _f			16		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

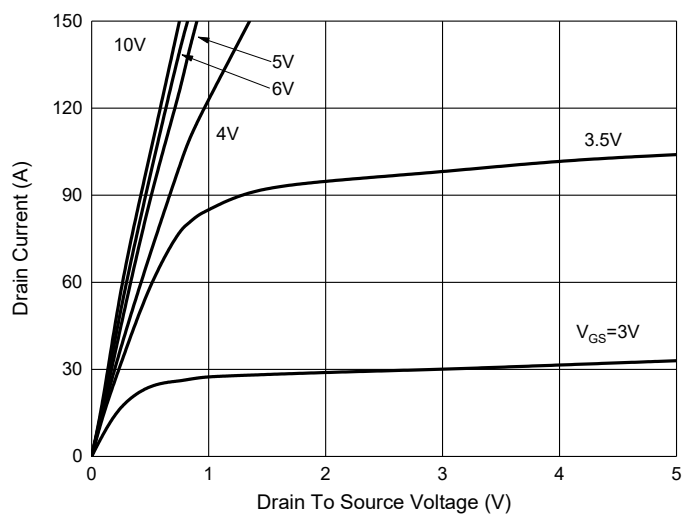


Fig. 2 - Transfer Characteristics

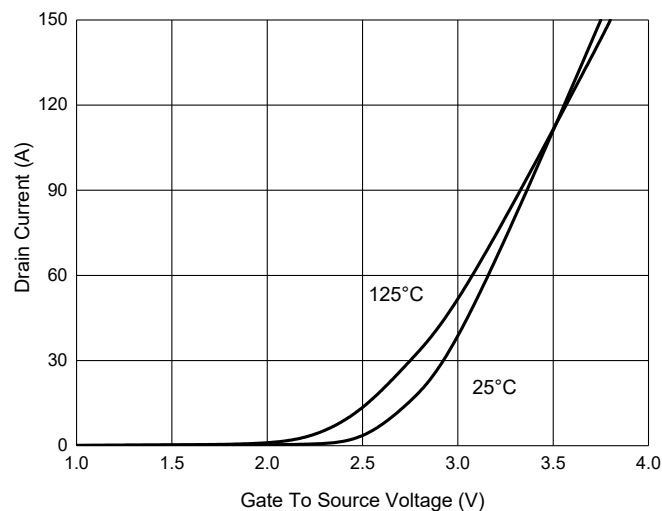


Fig. 3 - $R_{DS(ON)}-I_D$

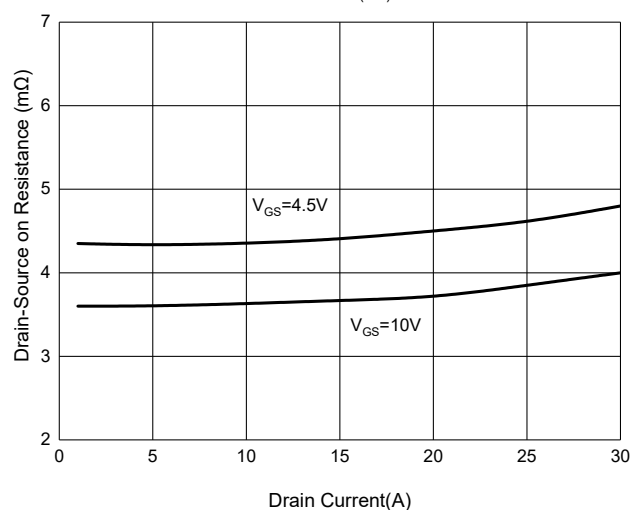


Fig. 4 - Normalized On Resistance Characteristics

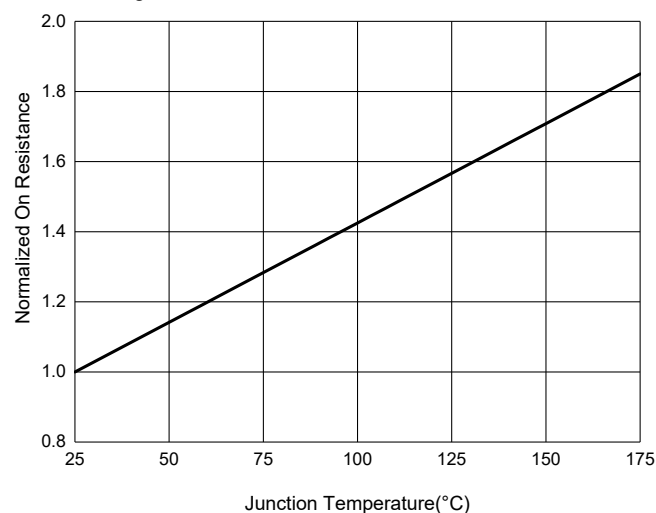


Fig. 5 - Capacitance Characteristics

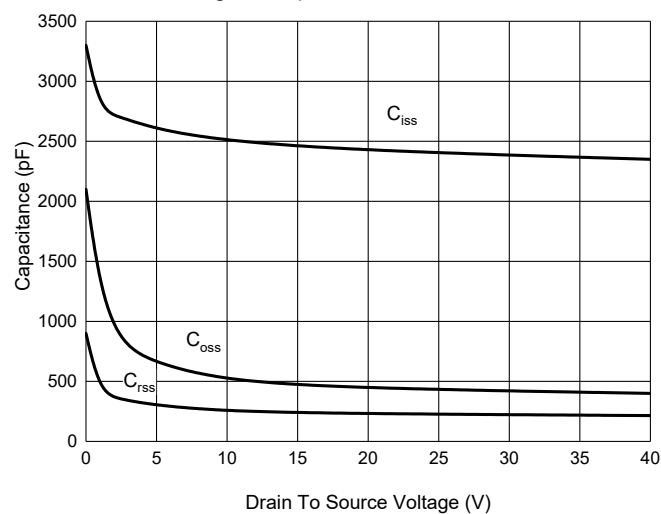
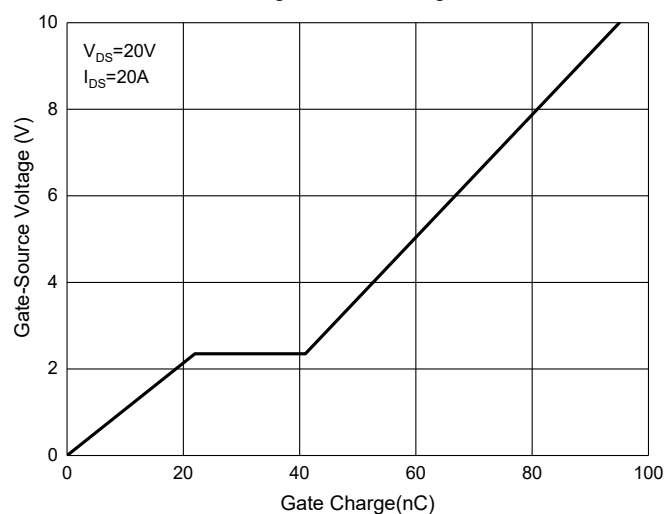
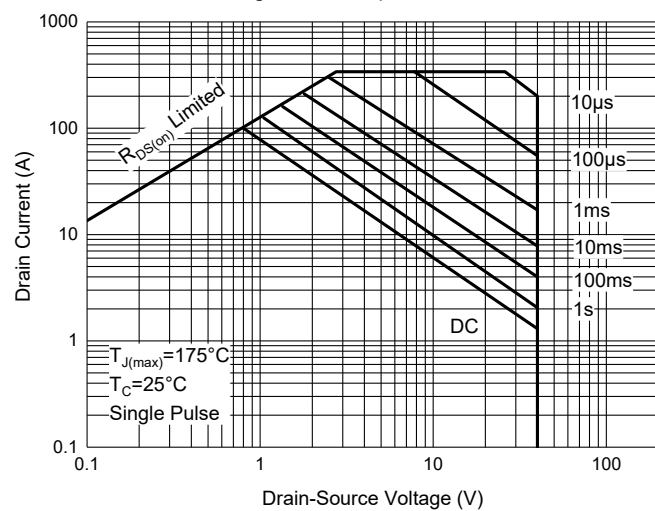


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Safe Operation Area



Ordering Information

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

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