

Features

- Advanced Trench Cell Design
- Low Thermal Resistance
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

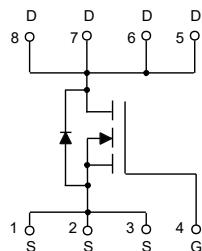
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 1.56°C/W Junction to Case ^(Note 1)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	45	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current $T_C=25^\circ\text{C}$	I_D	100	A
Pulsed Drain Current ^(Note 2)	I_{DM}	320	A
Total Power Dissipation $T_C=25^\circ\text{C}$	P_D	80	W

Note:

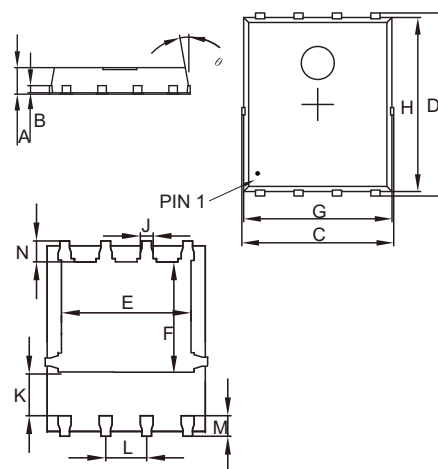
1. Surface Mounted on FR4 Board, $t \leq 10$ sec.
2. The Maximum Current Rating is Package Limited.

Internal Structure



N-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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	45			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=36V, V_{GS}=0V, T_J=25^\circ C$			1	μA
		$V_{DS}=36V, V_{GS}=0V, T_J=85^\circ C$			30	
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.5	2	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$		1.4	1.8	m Ω
		$V_{GS}=4.5V, I_D=10A$		1.8	2.3	
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=20A$			1.3	V
Continuous Body Diode Current	I_S				100	A
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=20V, V_{GS}=0V, f=1MHz$		5106		pF
Output Capacitance	C_{oss}			1234		
Reverse Transfer Capacitance	C_{rss}			72		
Total Gate Charge	Q_g	$V_{DS}=22.5V, V_{GS}=10V, I_D=20A$		90		nC
Gate-Source Charge	Q_{gs}			16.2		
Gate-Drain Charge	Q_{gd}			16.5		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DS}=22.5V, R_L=1.125\Omega$ $R_{GEN}=4.5\Omega, I_{DS}=20A$		14		ns
Turn-On Rise Time	t_r			47		
Turn-Off Delay Time	$t_{d(off)}$			92		
Turn-Off Fall Time	t_f			52		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

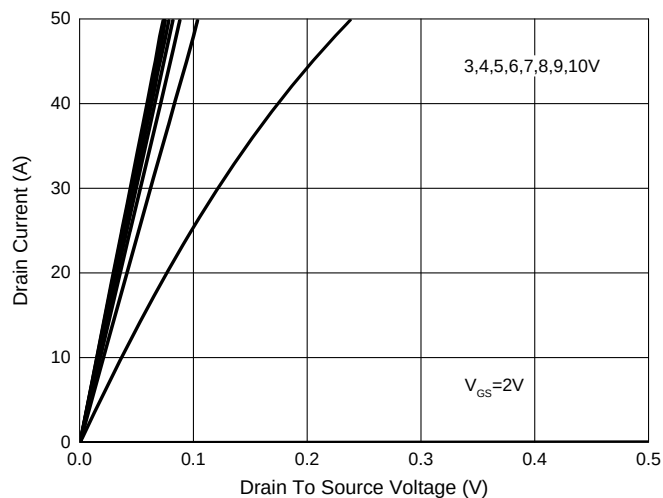


Fig. 2 - $I_S - V_{SD}$

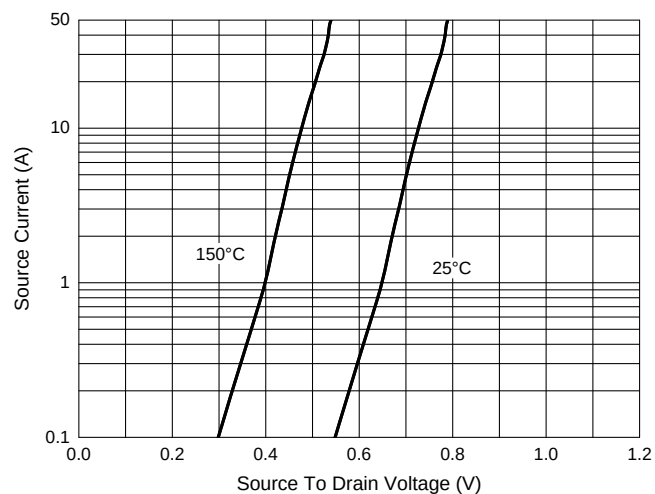


Fig. 3 - $R_{DS(ON)} - I_D$

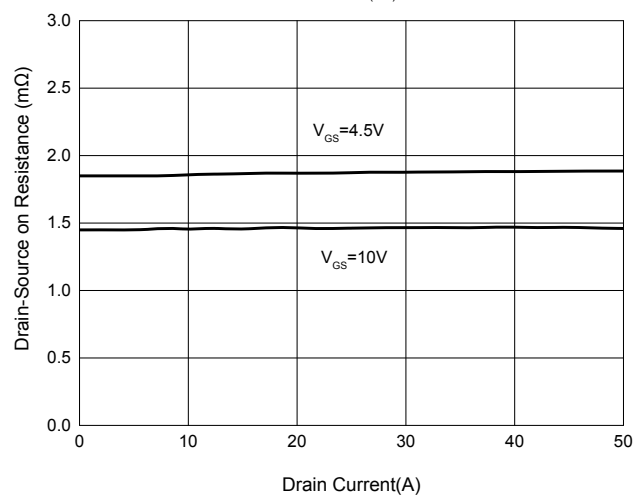


Fig. 4 - Normalized On Resistance Characteristics

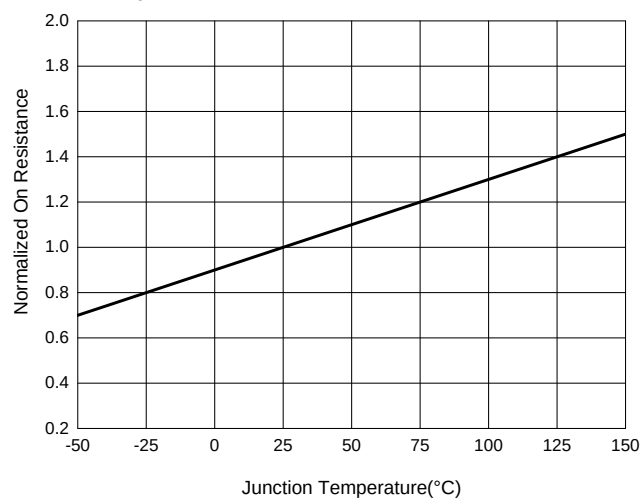


Fig. 5 - Capacitance Characteristics

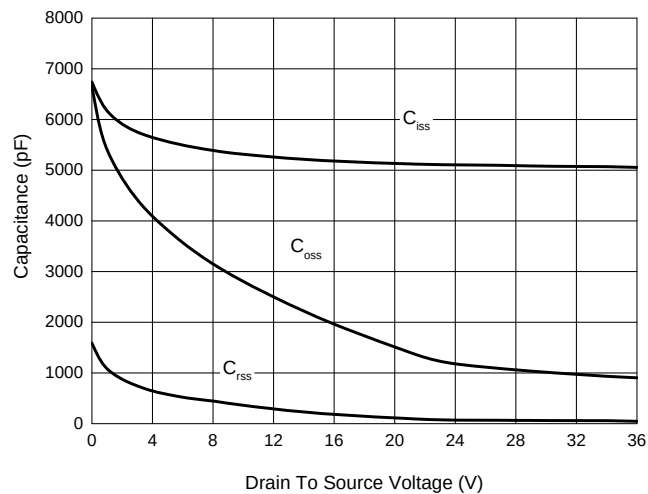
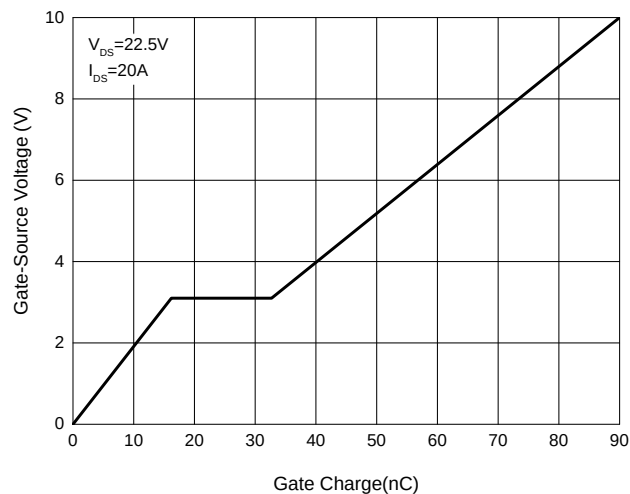
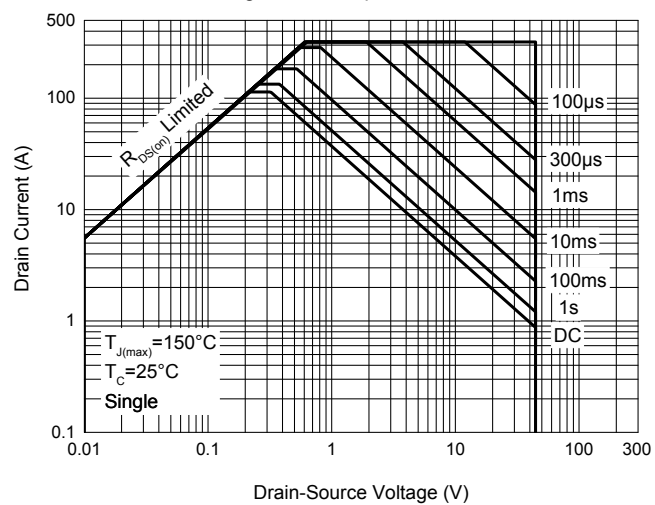


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Safe Operation Area



Ordering Information

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

Note : Adding "-HF" Suffix for Halogen Free, eg. Part Number-TP-HF

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