

## Features

- Advanced Trench Cell Design
- High Speed Switch
- 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)

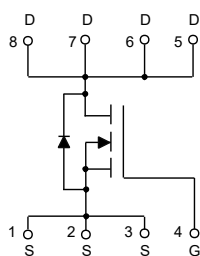
## Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 1.47°C/W Junction to Case<sup>(Note 1)</sup>

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	100	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current	$I_D$	80	A
Pulsed Drain Current	$I_{DM}$	150	A
Total Power Dissipation	$P_D$	85	W

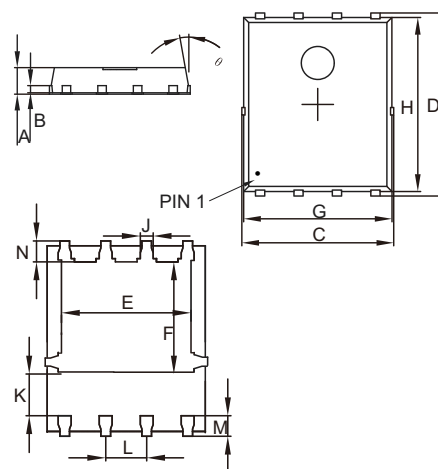
Note: 1.Surface Mounted on FR4 Board,  $t \leq 10$  sec.

## 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
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	100			V
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=60V, V_{GS}=0V$			1	$\mu A$
		$V_{DS}=60V, V_{GS}=0V, T_J=85^\circ C$			30	$\mu A$
Gate-Threshold Voltage <sup>(Note 2)</sup>	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1	2	3	V
Drain-Source On-Resistance <sup>(Note 2)</sup>	$R_{DS(on)}$	$V_{GS}=10V, I_D=40A$		3.3	4.3	m $\Omega$
		$V_{GS}=4.5V, I_D=20A$		4.5	6.3	
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=40A$			1.3	V
<b>Dynamic Characteristics<sup>(Note 3)</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS}=50V, V_{GS}=0V, f=1MHz$		6124		pF
Output Capacitance	$C_{oss}$			792		
Reverse Transfer Capacitance	$C_{rss}$			15		
Total Gate Charge	$Q_g$	$V_{DD}=50V, V_{GS}=10V, I_D=40A$		101.6		nC
Gate-Source Charge	$Q_{gs}$			20.6		
Gate-Drain Charge	$Q_{gd}$			28.7		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=50V, I_D=40A, R_L=1.1\Omega, R_G=4.7\Omega$		28.2		ns
Turn-On Rise Time	$t_r$			7.5		
Turn-Off Delay Time	$t_{d(off)}$			81.9		
Turn-Off Fall Time	$t_f$			20.1		

Note 2. Pulse Test : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 1\%$ .

3. Guaranteed by Design, Not Subject to Production Testing.

## Curve Characteristics

Fig. 1 - Typical Output Characteristics

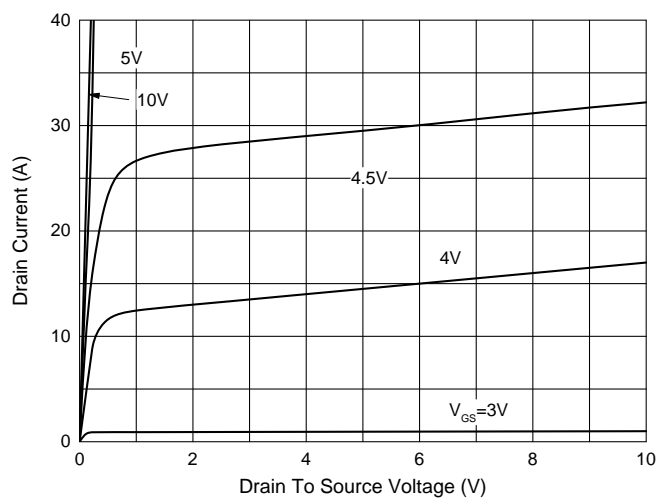


Fig. 2 - Total Gate Charge Characteristics

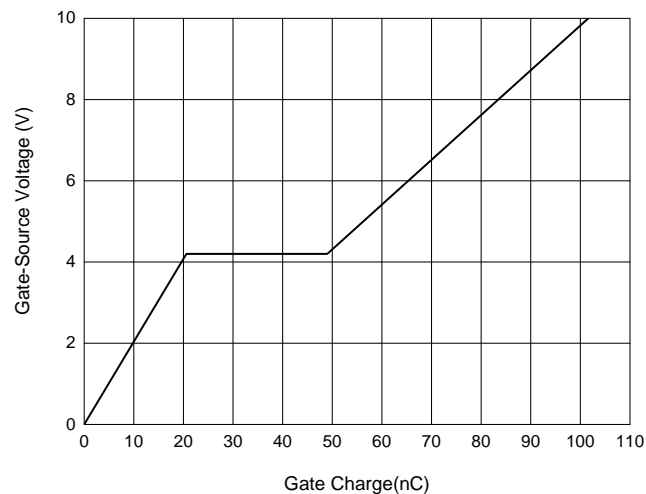


Fig. 3 - Capacitance Characteristics

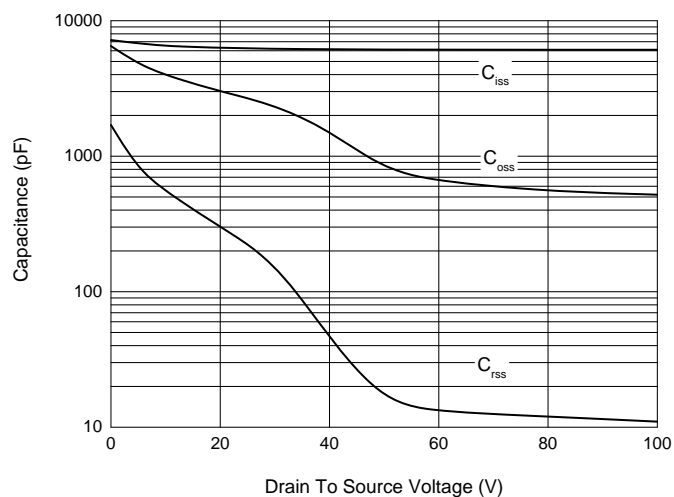


Fig. 4 - On-Resistance Characteristics

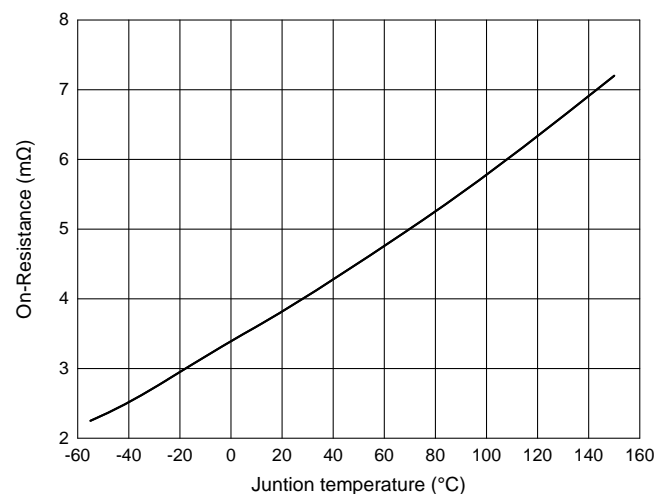
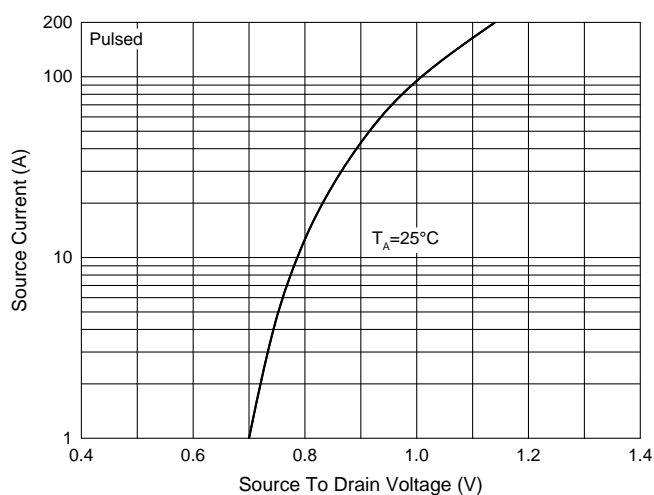


Fig. 5 -  $I_S - V_{SD}$



## 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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