

**Features**

- Advanced Trench Cell Design
- Low Thermal Resistance
- 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**

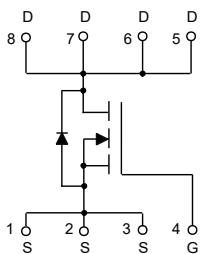
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 3.5°C/W Junction to Case <sup>(Note 2)</sup>

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	±10	V
Continuous Drain Current	$I_D$	75	A
Pulsed Drain Current <sup>(Note 3,4)</sup>	$I_{DM}$	160	A
Total Power Dissipation	$P_D$	35	W
Single Pulsed Avalanche Energy <sup>(Note 5)</sup>	$E_{AS}$	80	mJ

**Note:**

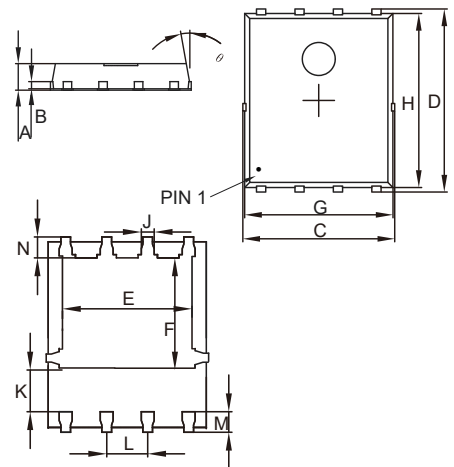
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. Surface Mounted on 1 in2 Pad Area,  $t \leq 10$  sec.
3. Pulse Test: Pulse Width  $\leq 10\mu s$ , Duty Cycle  $\leq 1\%$ .
4. Limited by Bonding Wire.
5.  $T_j = 25^\circ C$ ,  $L = 0.1mH$ ,  $V_{DD} = 20V$ .

**Internal Structure**



**N-CHANNEL  
MOSFET**

**DFN5060**



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	20			V
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 10V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=16V, V_{GS}=0V$			1	$\mu A$
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.3		1	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=20A$		4	4.8	m $\Omega$
		$V_{GS}=2.5V, I_D=10A$		5.3	6.8	m $\Omega$
<b>Diode Characteristics</b>						
Continuous Body Diode Current	$I_S$				75	A
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=20A$			1.3	V
Reverse Recovery Time	$t_{rr}$	$I_S=20A, di/dt=100A/\mu s$		32		ns
Reverse Recovery Charge	$Q_{rr}$			24		nC
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=10V, V_{GS}=0V, f=1MHz$		2386		pF
Output Capacitance	$C_{oss}$			372		
Reverse Transfer Capacitance	$C_{rss}$			330		
Total Gate Charge	$Q_g$	$V_{DS}=10V, V_{GS}=4.5V, I_D=20A$		33		nC
Gate-Source Charge	$Q_{gs}$			5.9		
Gate-Drain Charge	$Q_{gd}$			11		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=10V, V_{GEN}=4.5V, R_G=4.5\Omega, R_L=0.5\Omega, I_{DS}=20A$		10.9		ns
Turn-On Rise Time	$t_r$			87		
Turn-Off Delay Time	$t_{d(off)}$			82		
Turn-Off Fall Time	$t_f$			55		

**Curve Characteristics**

Fig. 1 - Typical Output Characteristics

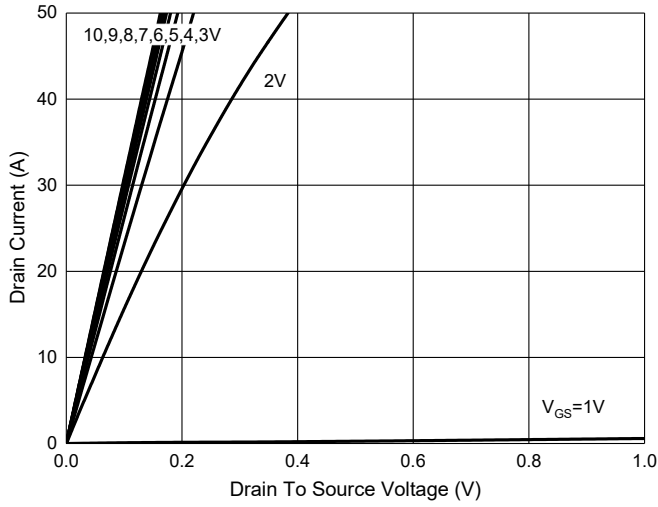


Fig. 2 -  $I_S - V_{SD}$

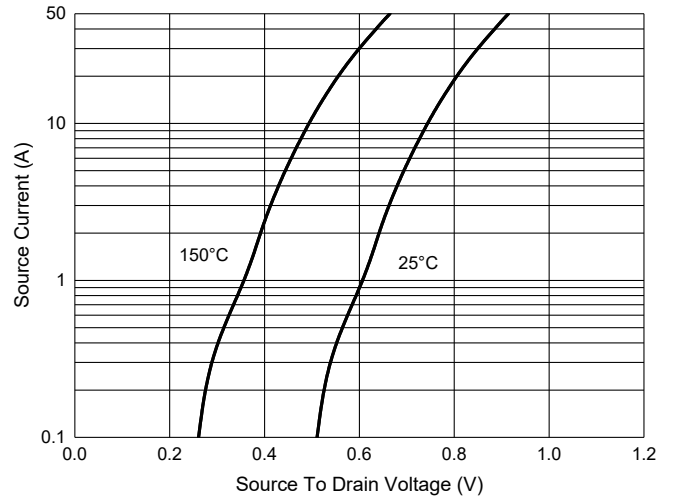


Fig. 3 -  $R_{DS(ON)} - I_D$

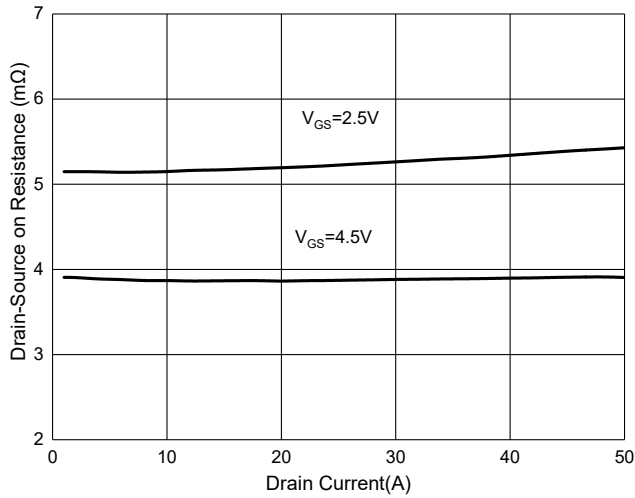


Fig. 4 - Normalized On Resistance Characteristics

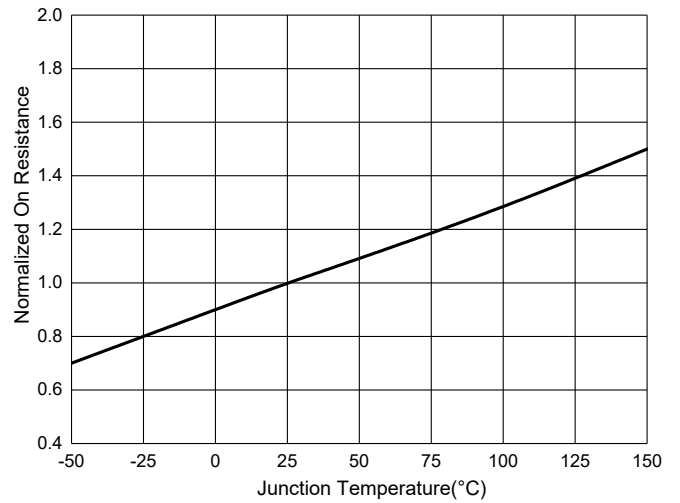


Fig. 5 - Capacitance Characteristics

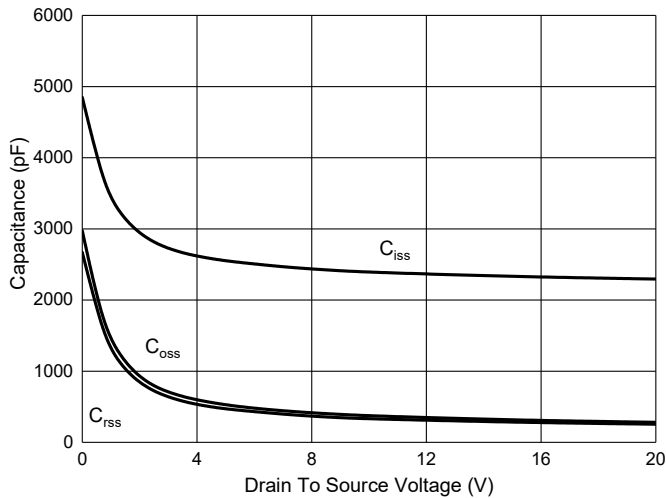
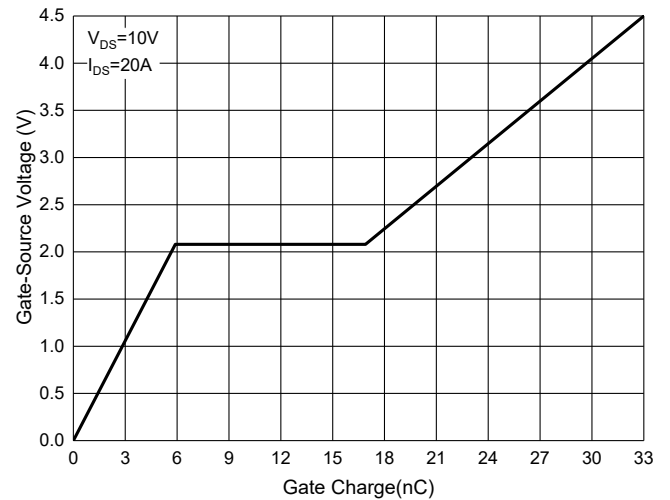
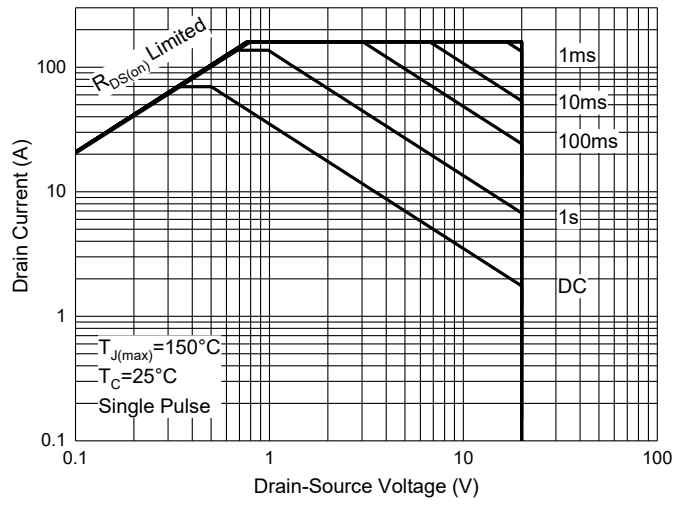


Fig. 6 - Gate Charge



## Curve Characteristics

Fig. 7 - Safe Operation Area



## Ordering Information

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

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