

## Features

- Lower Capacitance
- Lower Total Gate Charge
- Lower  $R_{DS(on)}$
- Tighter  $V_{SD}$  Specifications
- Avalanche Energy Specified
- 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)

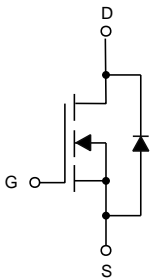
## Maximum Ratings

- Operating Junction Temperature Range :  $-55^{\circ}\text{C}$  to  $+150^{\circ}\text{C}$
- Storage Temperature Range:  $-55^{\circ}\text{C}$  to  $+150^{\circ}\text{C}$
- Thermal Resistance:  $100^{\circ}\text{C/W}$  Junction to Ambient

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	800	V
Gate-Source Voltage	$V_{GS}$	$\pm 30$	V
Continuous Drain Current	$I_D$	2.4	A
Pulsed Drain Current	$I_{DM}$	9.6	A
Single Pulse Avalanche Energy <sup>(Note 1)</sup>	$E_{AS}$	180	mJ

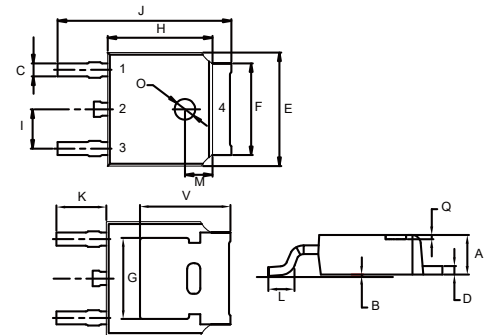
Note: 1.  $I_L=2.4\text{A}$ ,  $V_{DD}=50\text{V}$ ,  $R_G=25\Omega$ , Starting  $T_J=25^{\circ}\text{C}$ .

## Internal Structure



# N-CHANNEL MOSFET

## DPAK(TO-252)



1. Gate
- 2,4. Drain
3. Source

DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.087	0.094	2.20	2.40	
B	0.000	0.005	0.00	0.13	
C	0.026	0.034	0.66	0.86	
D	0.018	0.023	0.46	0.58	
E	0.256	0.264	6.50	6.70	
F	0.201	0.215	5.10	5.46	
G	0.190		4.83		TYP.
H	0.236	0.244	6.00	6.20	
I	0.086	0.094	2.18	2.39	
J	0.386	0.409	9.80	10.40	
K	0.114		2.90		TYP.
L	0.055	0.067	1.40	1.70	
M	0.063		1.60		TYP.
O	0.043	0.051	1.10	1.30	
Q	0.000	0.012	0.00	0.30	
V	0.211		5.35		TYP.

**Electrical Characteristics @ 25°C (Unless Otherwise Specified)**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	800			V
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 30V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=800V, V_{GS}=0V$			10	$\mu A$
Gate-Threshold Voltage <sup>(Note 2)</sup>	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	3		5	V
Drain-Source On-Resistance <sup>(Note 2)</sup>	$R_{DS(on)}$	$V_{GS}=10V, I_D=1.2A$			6.3	$\Omega$
Forward Transconductance <sup>(Note 2)</sup>	$g_{FS}$	$V_{DS}=50V, I_D=1.2A$	1.5	2.65		S
<b>Dynamic Characteristics<sup>(Note 3)</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS}=25V, V_{GS}=0V, f=1MHz$			550	pF
Output Capacitance	$C_{oss}$				60	
Reverse Transfer Capacitance	$C_{rss}$				7	
Total Gate Charge	$Q_g$	$V_{DD}=640V, V_{GS}=10V, I_D=2.4A$			15	nC
Gate-Source Charge	$Q_{gs}$			2.6		
Gate-Drain Charge	$Q_{gd}$			6		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=400V, I_D=2.4A, R_G=25\Omega$			35	ns
Turn-On Rise Time	$t_r$				70	
Turn-Off Delay Time	$t_{d(off)}$				60	
Turn-Off Fall Time	$t_f$				65	
<b>Drain-Source Body Diode Characteristics</b>						
Continuous Body Diode Current	$I_S$				2.4	A
Pulsed Diode Forward Current	$I_{SM}$				9.6	
Body Diode Voltage	$V_{SD}$	$I_{SD}=2.4A, V_{GS}=0V$			1.4	V

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

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

**Curve Characteristics**

Fig. 1 - Typical Output Characteristics

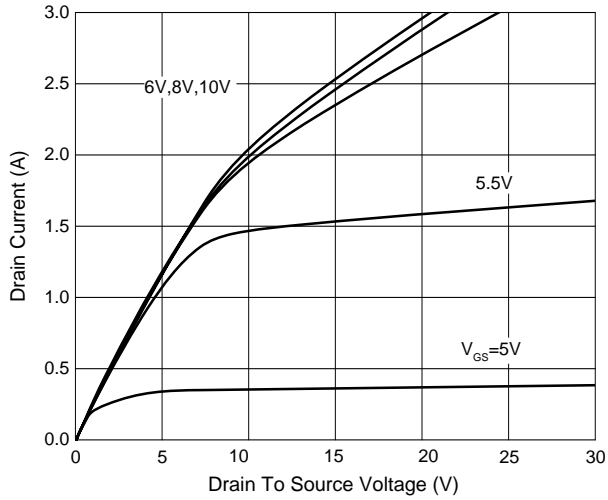


Fig. 2 - Transfer Characteristics

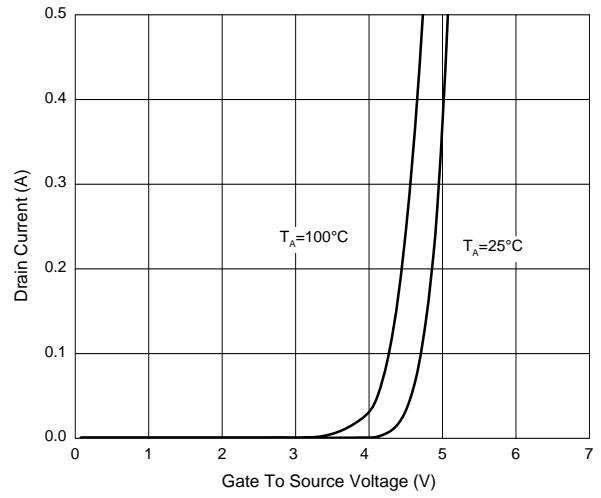


Fig. 3 -  $R_{DS(ON)} - I_D$

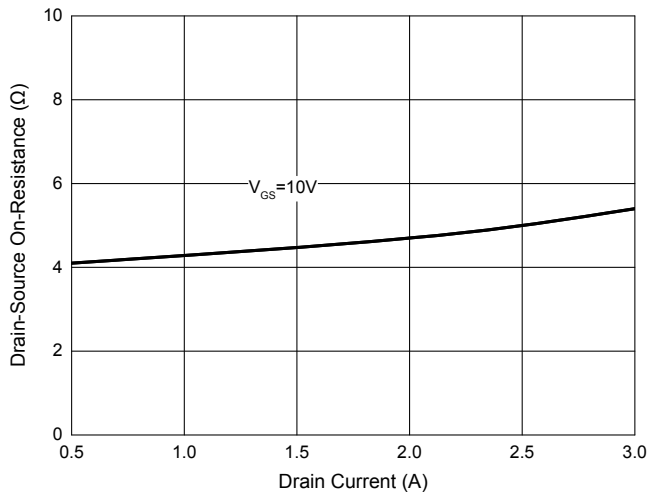


Fig. 4 -  $R_{DS(ON)} - V_{GS}$

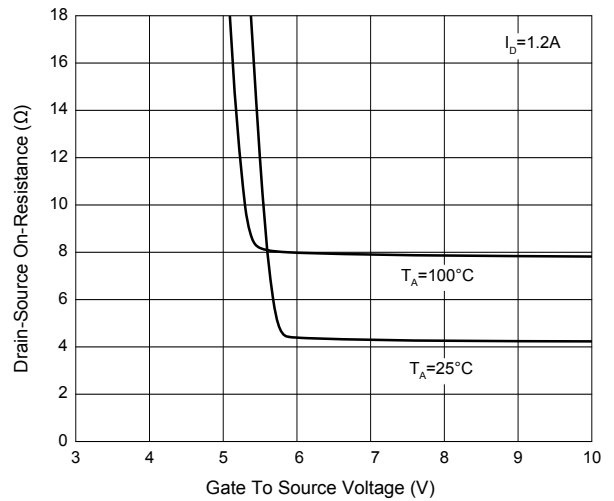


Fig. 5 -  $I_S - V_{SD}$

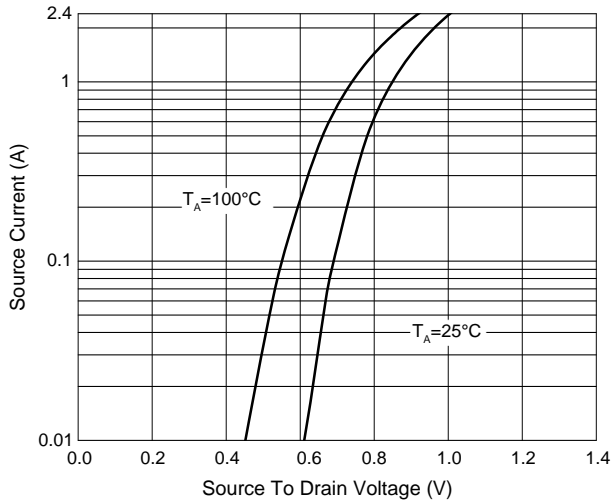
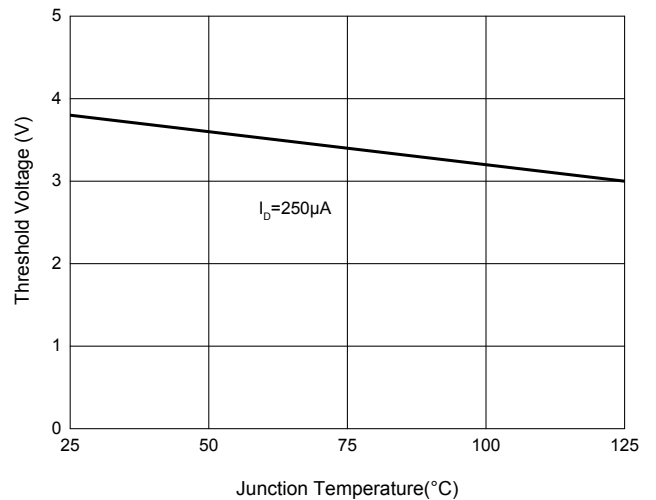


Fig. 6 - Threshold Voltage Characteristics



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 2.5Kpcs/Reel

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

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