

Features

- High Density Cell Design for Ultra Low $R_{DS(ON)}$
- Fully Characterized Avalanche Voltage and Current
- 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)

P-Channel MOSFET

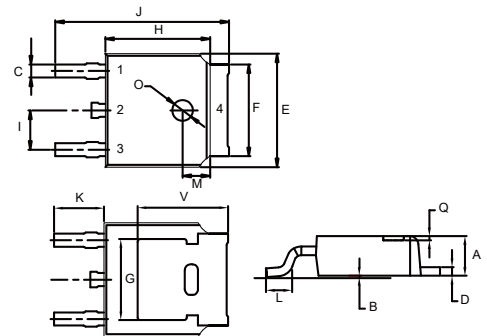
Maximum Ratings

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

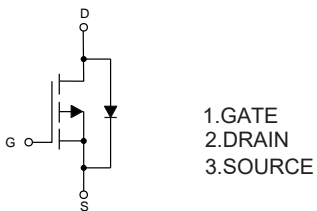
Parameter	Symbol	Rating	Unit
Drain -Source Voltage	V_{DS}	-40	V
Gate -Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	-40	A
Drain Current-Pulsed	I_{DM}	-160	A
Single Pulsed Avalanche Energy ^(Note1)	E_{AS}	544	mJ
Power Dissipation	P_D	1.25	W

Note: 1. E_{AS} condition: $V_{DD} = -20\text{V}$, $L = 1\text{mH}$, $R_G = 25\Omega$, Starting $T_J = 25^{\circ}\text{C}$

DPAK



Internal Structure



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 (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-40			V
Gate-Threshold Voltage ^(Note2)	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.5	-1.85	-3.0	V
Gate-Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -40V, V_{GS} = 0V$			-1	μA
Drain-Source On-Resistance ^(Note2)	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -12A$		12	14	m Ω
Forward Transconductance ^(Note2)	g_{FS}	$V_{DS} = -5V, I_D = -12A$	34			S
Dynamic Characteristics^(Note3)						
Input Capacitance	C_{iss}	$V_{DS} = -20V, V_{GS} = 0V, f = 1MHz$		2960		pF
Output Capacitance	C_{oss}			370		
Reverse Transfer Capacitance	C_{rss}			310		
Switching Characteristics^(Note3)						
Total Gate Charge	Q_g	$V_{DS} = -20V, V_{GS} = -10V, I_D = -12A$		72		nC
Gate-Source Charge	Q_{gs}			14		
Gate-Drain Charge	Q_{gd}			15		
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = -20V, V_{GS} = -10V, R_G = 3\Omega, I_D = -20A$		10		ns
Turn-on Rise Time	t_r			18		
Turn-off Delay Time	$t_{d(off)}$			38		
Turn-off Fall Time	t_f			24		
Drain-Source Diode Characteristics						
Drain-Source Diode Forward Voltage ^(Note 2)	V_{SD}	$V_{GS} = 0V, I_S = -20A$			-1.2	V
Continuous Drain-Source Diode Forward Current ^(Note 4)	I_S				-40	A
Pulsed Drain-Source Diode Forward Current	I_{SM}				-160	A

Notes:

1. E_{AS} Condition: $V_{DD} = -20V, L = 1mH, R_G = 25\Omega$, Starting $T_J = 25^\circ C$
2. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
3. Guaranteed by Design, Not Subject to Production.
4. Surface Mounted on FR4 Board, $t \leq 10$ sec.

Curve Characteristics

Fig. 1 - Output Characteristics

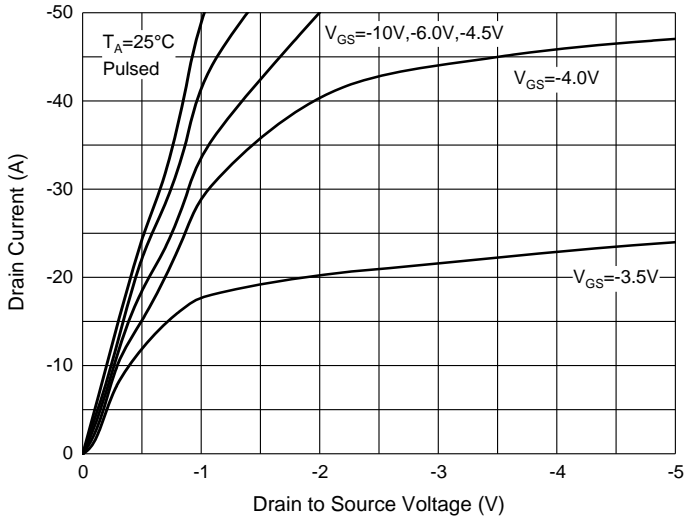


Fig. 2 - Transfer Characteristics

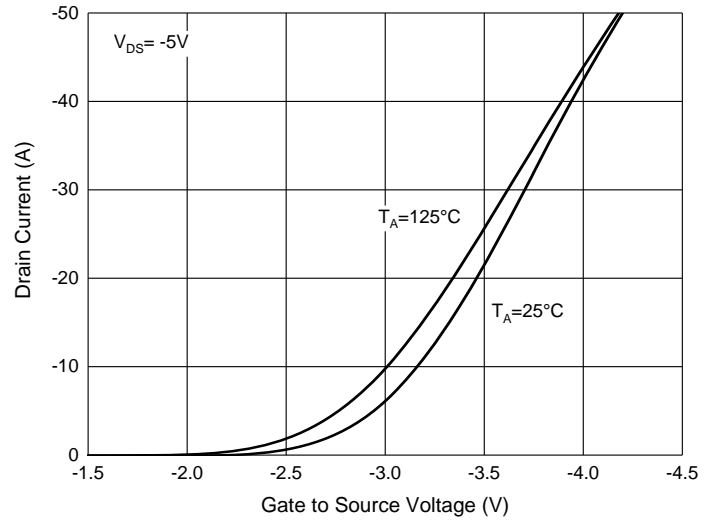


Fig. 3 - $R_{DS(ON)} - I_D$

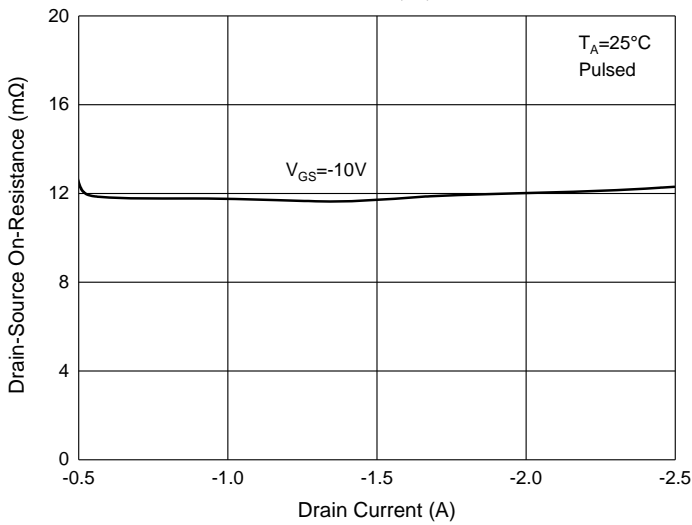


Fig. 4 - $R_{DS(ON)} - V_{GS}$

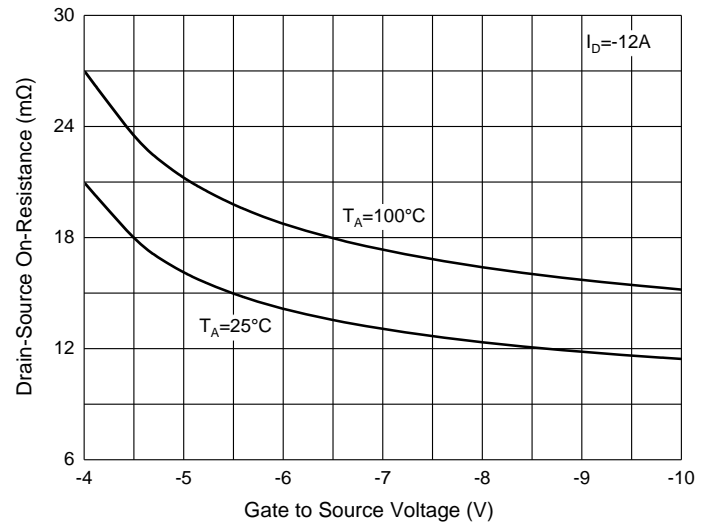


Fig. 5 - $I_S - V_{SD}$

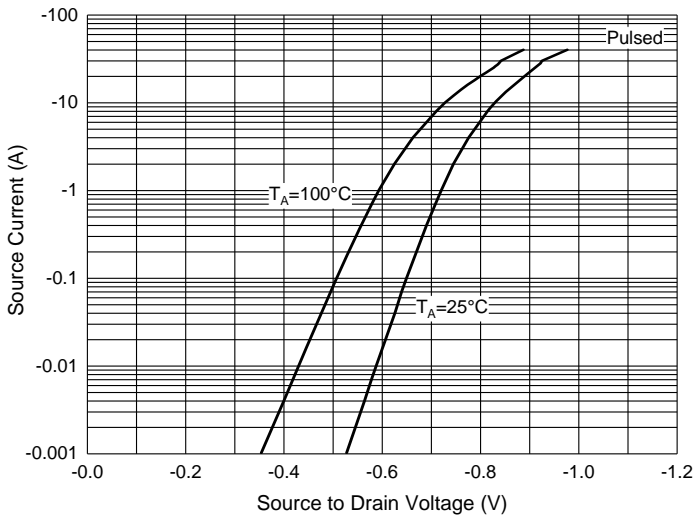
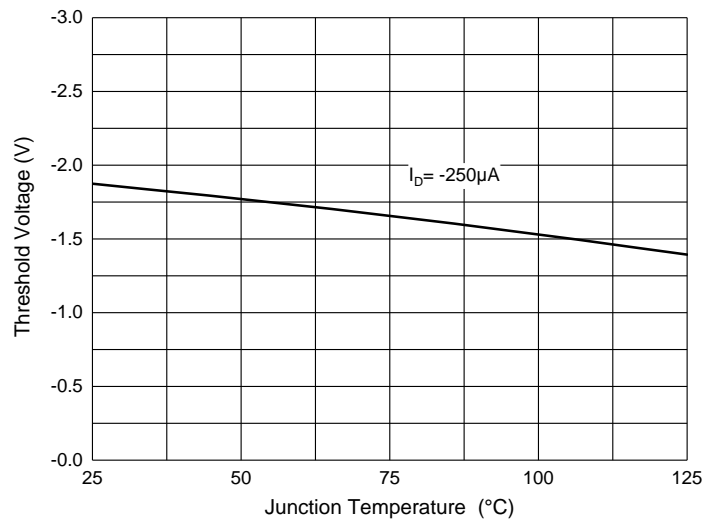


Fig. 6 - Threshold Voltage



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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