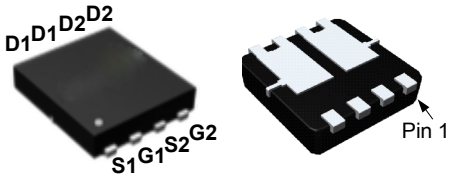
Features

- 30V/35A,
  $R_{DS(ON)}$ = 8mΩ (typ.) @ V_{GS} = 10V
  $R_{DS(ON)}$ = 11mΩ (typ.) @ V_{GS} = 4.5V
- 100% UIS + R_g Tested
- Reliable and Rugged
- Lead Free Available (RoHS Compliant)
- Moisture Sensitivity Level MSL1
  (per JEDEC J-STD-020D)

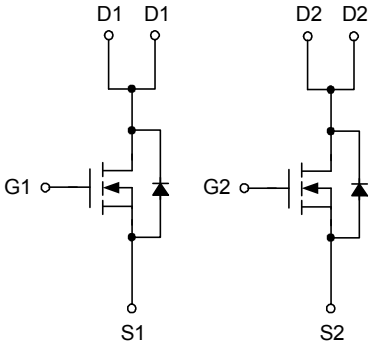
Applications

- Power Management in Notebook Computer, Portable Equipment and Battery Powered Systems.

Pin Description



PDFN5*6-8L



N-Channel MOSFET

Absolute Maximum Ratings (T_A = 25°C unless otherwise noted)

Symbol	Parameter		Rating	Unit
V_{DSS}	Drain-Source Voltage		30	V
V_{GSS}	Gate-Source Voltage		±20	
T_J	Maximum Junction Temperature		150	C
T_{STG}	Storage Temperature Range		-55 to 150	
I_S	Diode Continuous Forward Current	T_C=25°C	35	A
I_D	Continuous Drain Current	T_C=25°C	35	
		T_C=100°C	21	
P_D	Maximum Power Dissipation	T_C=25°C	19.2	W
		T_C=100°C	7.7	
I_{DM} [b]	Pulse Drain Current	T_C=25°C	105	A
$R_{\theta JC}$	Thermal Resistance-Junction to Case	Steady State	6.5	°C/W
$R_{\theta JA}$ [c]	Thermal Resistance-Junction to Ambient	t ≤ 10s	50	°C/W
		Steady State	88	
I_{AS} [d]	Avalanche Current, Single pulse	L=0.1mH	24	A
E_{AS} [d]	Avalanche Energy, Single pulse	L=0.1mH	29	mJ

Note a: Max. continuous current is limited by bonding wire.
Note b: Pulse width is limited by max. junction temperature.
Note c: Surface Mounted on 1in^2 pad area, steady state t = 999s.
Note d: UIS tested and pulse width limited by maximum junction temperature 150°C (initial temperature T_j=25°C).

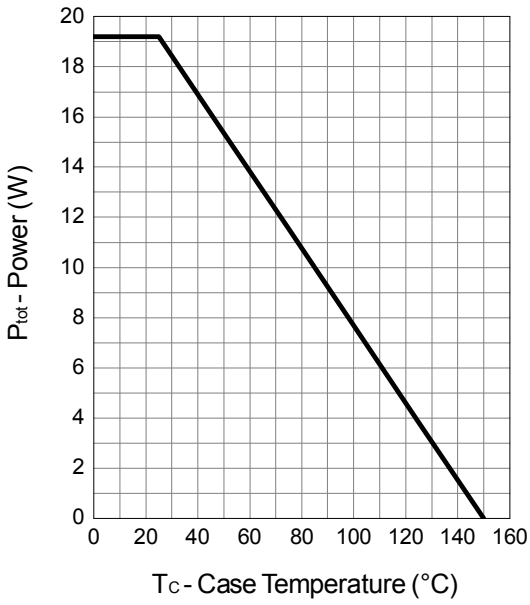
Electrical Characteristics (T_A = 25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_{DS}=250μA	30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=24V, V_{GS}=0V	-	-	1	μA
		T_J=85°C	-	-	30	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_{DS}=250μA	1.2	1.8	2.5	V
I_{GSS}	Gate Leakage Current	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
$R_{DS(ON)}$ [e]	Drain-Source On-state Resistance	V_{GS}=10V, I_{DS}=15A	-	8	10	mΩ
		T_J=125°C	-	10.4	-	
		V_{GS}=4.5V, I_{DS}=10A	-	11	15	
Gfs	Forward Transconductance	V_{DS}=5V, I_{DS}=15A	-	28	-	S
Diode Characteristics						
V_{SD} [e]	Diode Forward Voltage	I_{SD}=15A, V_{GS}=0V	-	0.86	1.1	V
t_{rr}	Reverse Recovery Time	V_{dd}=20V I_{SD}=5A, dI_{SD}/dt=100 A/μs	-	14	-	ns
t_a	Charge Time		-	7.6	-	
t_{rr}	Reverse Recovery Time		-	6.4	-	
Q_{rr}	Reverse Recovery Charge		-	6.2	-	nC
Dynamic Characteristics [f]						
R_G	Gate Resistance	V_{GS}=0V,V_{DS}=0V,F=1MHz	-	1.2	2.4	Ω
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=15V, Frequency=1.0MHz	-	1180	-	pF
C_{oss}	Output Capacitance		-	190	-	
C_{rss}	Reverse Transfer Capacitance		-	115	-	
$t_{d(ON)}$	Turn-on Delay Time	V_{DD}=15V, R_L=15Ω, I_{DS}=1A, V_{GEN}=10V, R_G=6Ω	-	8.6	-	ns
t_r	Turn-on Rise Time		-	12.4	-	
$t_{d(OFF)}$	Turn-off Delay Time		-	25	-	
t_f	Turn-off Fall Time		-	7.2	-	
Gate Charge Characteristics [f]						
Q_g	Total Gate Charge	V_{DS}=15V, V_{GS}=10V, I_{DS}=15A	-	20	26.0	nC
Q_g	Total Gate Charge	V_{DS}=15V, V_{GS}=4.5V, I_{DS}=15A	-	10	-	
Q_{gth}	Threshold Gate Charge		-	1.9	-	
Q_{gs}	Gate-Source Charge		-	3.5	-	
Q_{gd}	Gate-Drain Charge		-	3.8	-	

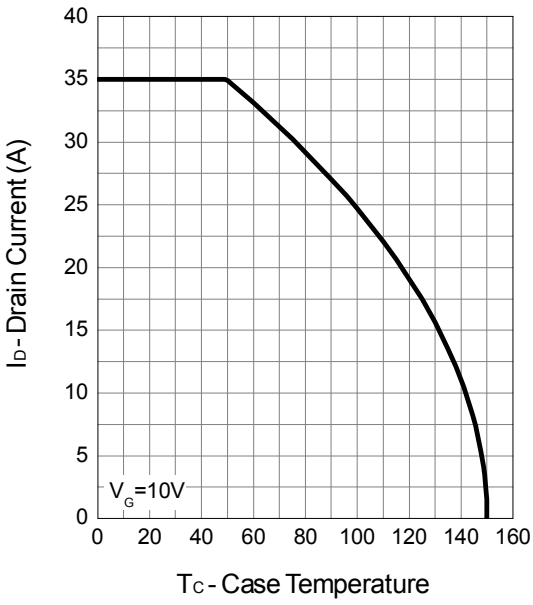
Note e：Pulse test ; pulse width≤300μs, duty cycle≤2%.
Note f：Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

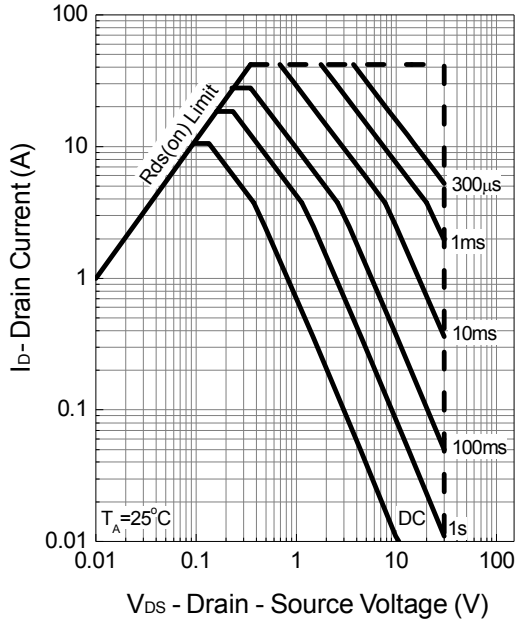
Power Dissipation



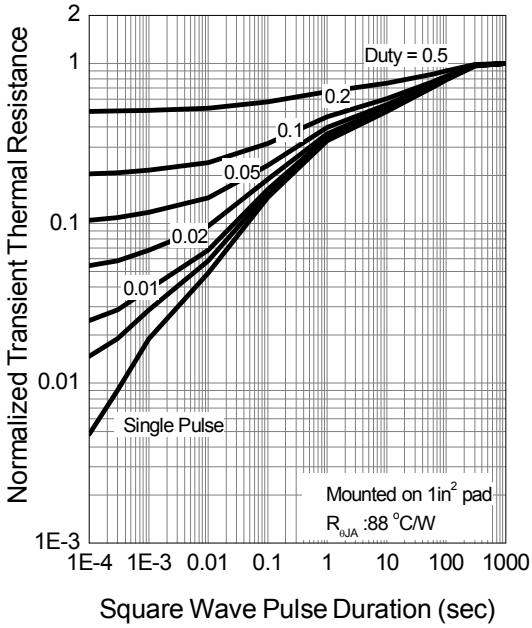
Drain Current



Safe Operation Area

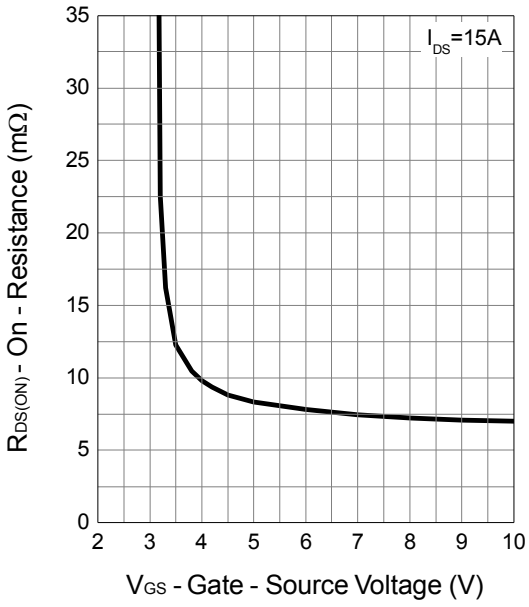


Thermal Transient Impedance

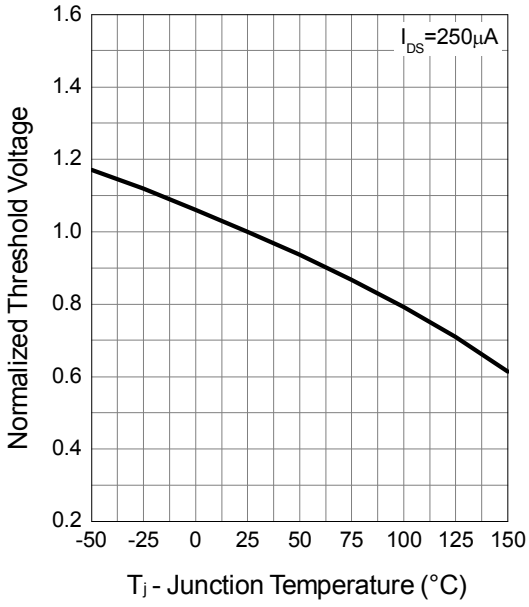


Typical Operating Characteristics (Cont.)

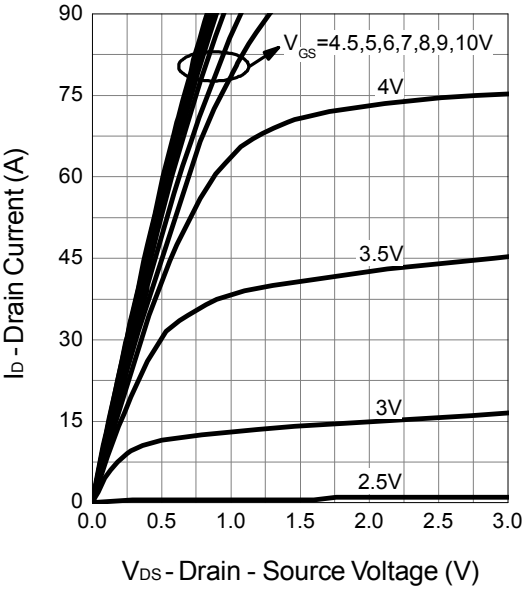
Gate-Source On Resistance



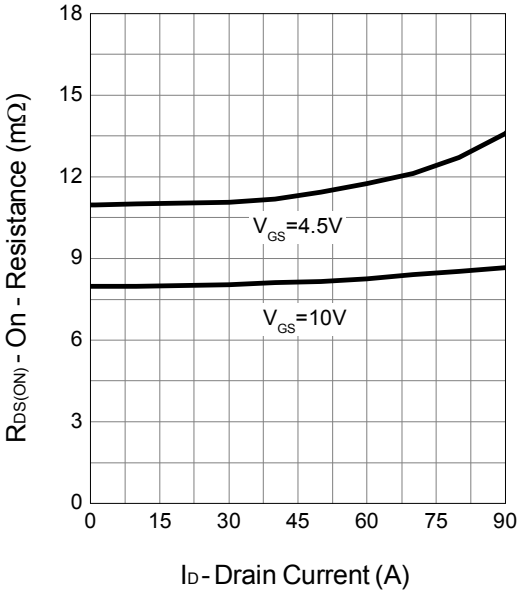
Gate Threshold Voltage



Output Characteristics

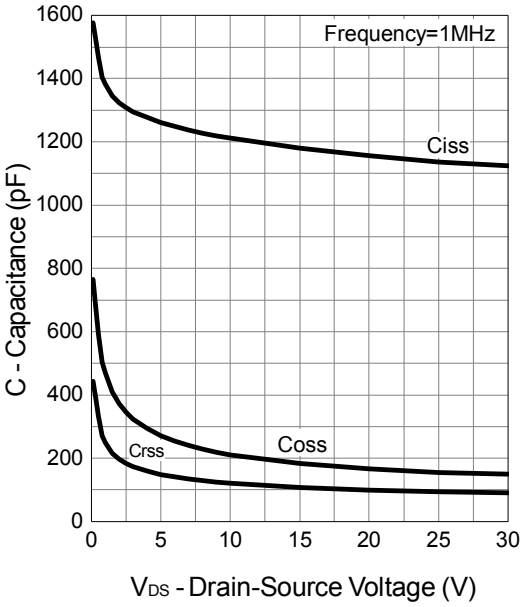


Drain-Source On Resistance

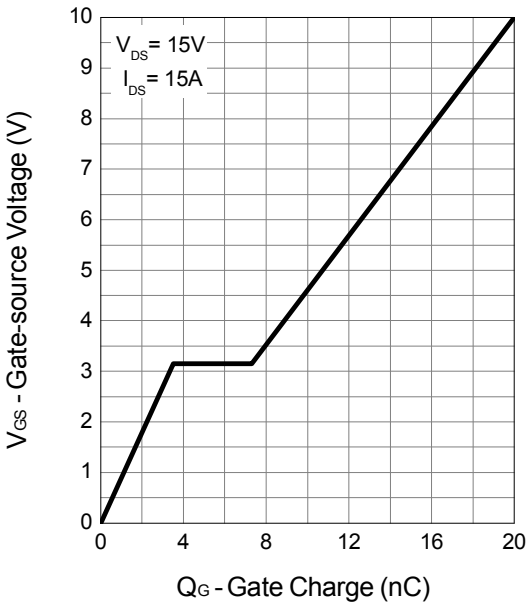


Typical Operating Characteristics (Cont.)

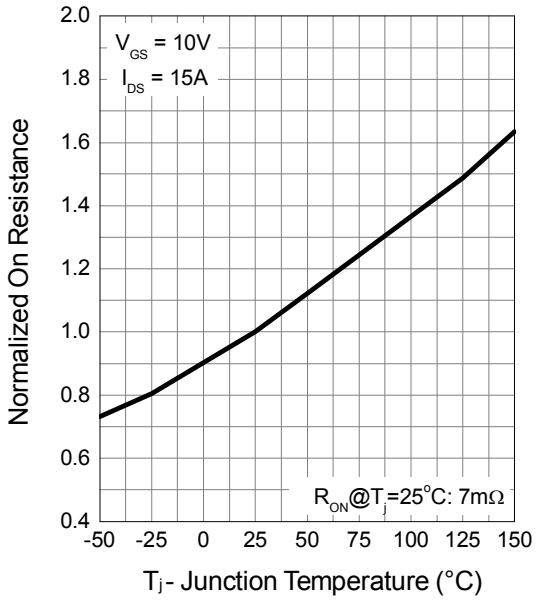
Capacitance



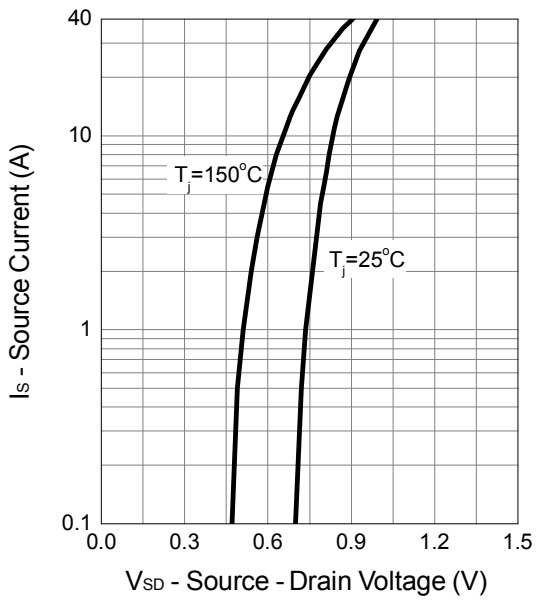
Gate Charge



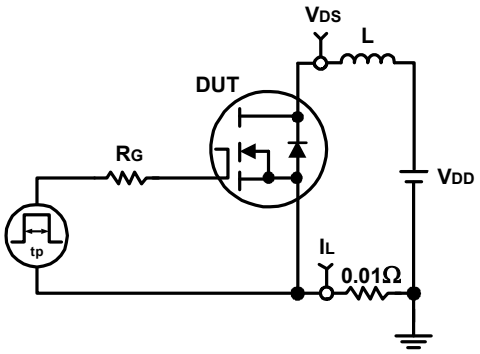
Drain-Source On Resistance

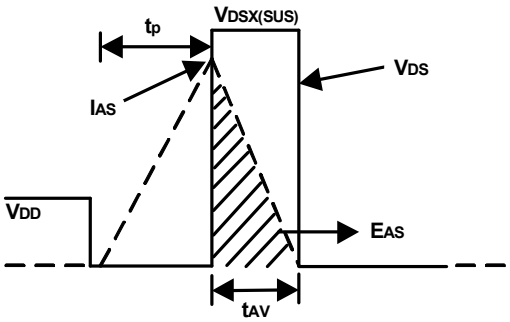


Source-Drain Diode Forward

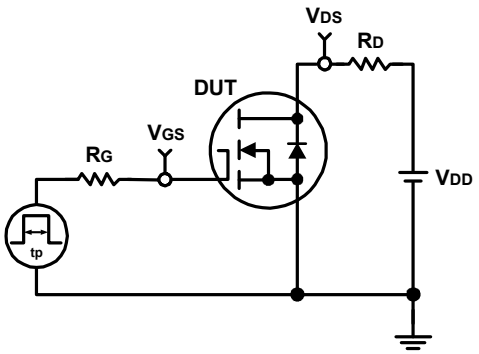


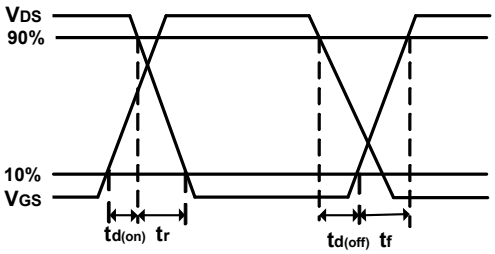
Avalanche Test Circuit and Waveforms





Switching Time Test Circuit and Waveforms





Package Information

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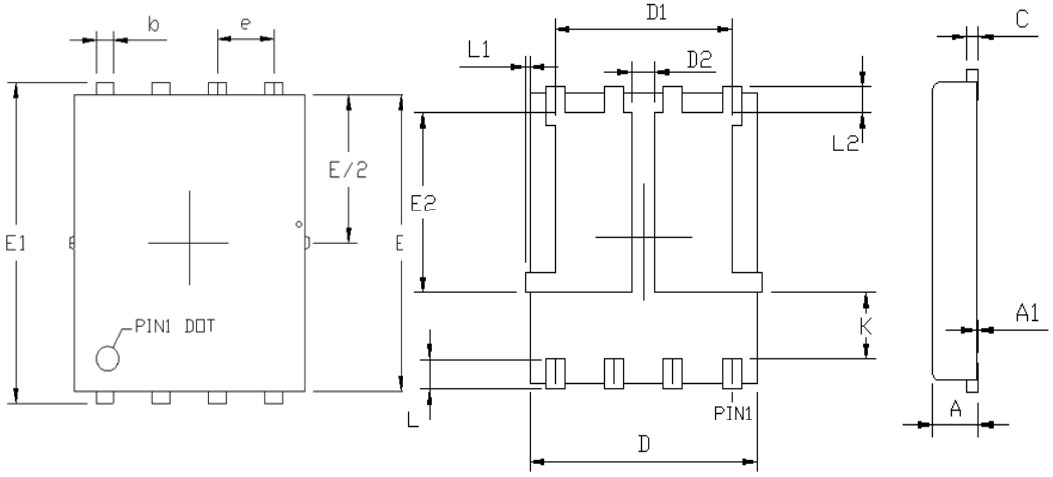
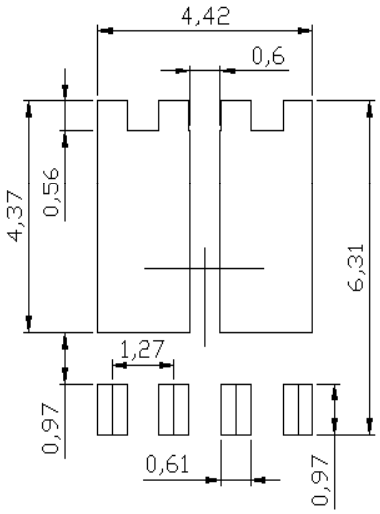


Top View **Bottom View** **Side View**

SYMBOLS	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.900	1.200	0.035	0.047
A1	0.000	0.050	0.000	0.002
b	0.300	0.500	0.012	0.020
c	0.150	0.300	0.006	0.012
D	4.800	5.000	0.189	0.197
D1	3.550	4.550	0.140	0.179
D2	0.500	0.910	0.020	0.036
E	5.650	5.850	0.222	0.230
E1	5.900	6.200	0.232	0.244
E2	3.200	3.780	0.126	0.149
e	1.27 BSC		0.050 BSC	
K	1.100	-	0.043	-
L	0.500	0.800	0.020	0.031
L1	0.000	0.150	0.000	0.006
L2	0.325	0.610	0.013	0.024

RECOMMENDED LAND PATTERN



UNIT: mm