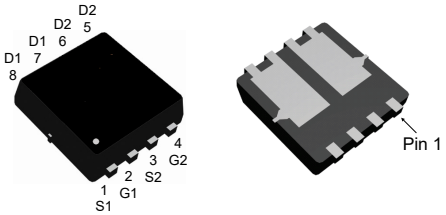
Features

- 30V/35A
  $R_{DS(ON)}$=11mΩ(typ.)@V_{GS}=10V
  $R_{DS(ON)}$=15mΩ(typ.)@V_{GS}=4.5V
- 100% UIS + R_g Tested
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)

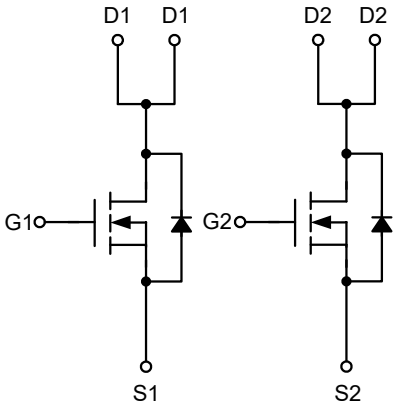
Applications

- Motor Control.
- High Current, High Speed Switching.
- Protable equipment application.

Pin Description



PDFN3.3*3.3-8L



N-Channel MOSFET

Absolute Maximum Ratings (T_A=25°C Unless Otherwise Noted)

Symbol	Parameter		Rating	Unit
Common Ratings				
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	A
		T_C=100°C	19	
I_{DM} [b]	Pulsed Drain Current	T_C=25°C	75	A
P_D	Maximum Power Dissipation	T_C=25°C	42	W
		T_C=100°C	17	
$R_{\theta JC}$	Thermal Resistance-Junction to Case	Steady State	3	°C/W
$R_{\theta JA}$ [c]	Thermal Resistance-Junction to Ambient	t ≤ 10s	43	°C/W
		Steady State	80	
I_{AS} [d]	Avalanche Current, Single pulse	L=0.1mH	35	A
E_{AS} [d]	Avalanche Energy, Single pulse	L=0.1mH	45	mJ

Note a : Maximum continuous current is limited by bonding wire.
Note b : Pulse width is limited by maximum 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 (initial temperature T_j=25°C).

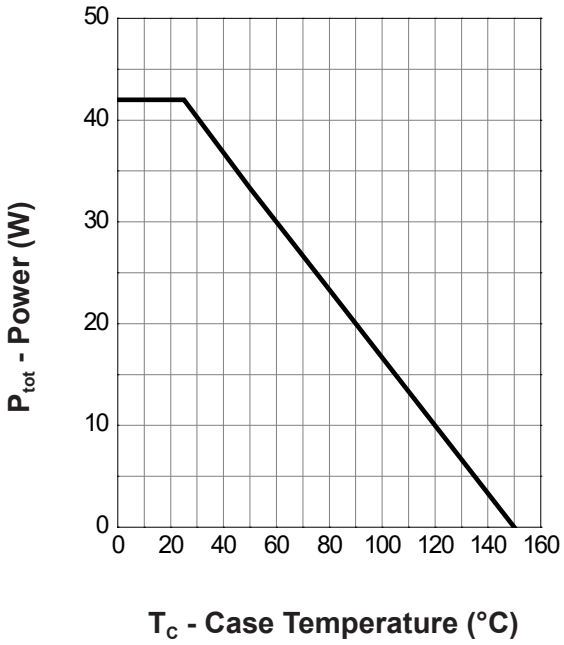
Electrical Characteristics (T_A = 25°C unless otherwise noted)

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	1.5	2	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}=35A	-	11	14	mΩ
		T_J=125°C	-	14.2	-	
		V_{GS}=4.5V, I_{DS}=24A	-	15	19	
Gfs	Forward Transconductance	V_{DS}=5V, I_{DS}=2.4A	-	8	-	S
Diode Characteristics						
V_{SD}[e]	Diode Forward Voltage	I_{SD}=1A, V_{GS}=0V	-	0.7	1.1	V
t_{rr}	Reverse Recovery Time	I_{SD}=4A, dI_{SD}/dt=100A/μs	-	11	-	ns
t_a	Charge Time		-	6	-	
t_b	Discharge Time		-	5	-	
Q_{rr}	Reverse Recovery Charge		-	2	-	nC
Dynamic Characteristics[f]						
R_G	Gate Resistance	V_{GS}=0V,V_{DS}=0V,F=1MHz	-	2.8	-	Ω
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=15V, Frequency=1.0MHz	-	623		pF
C_{oss}	Output Capacitance		-	86	-	
C_{rss}	Reverse Transfer Capacitance		-	64	-	
$t_{d(ON)}$	Turn-on Delay Time	V_{DD}=15V, R_L=15Ω, I_{DS}=1A, V_{GEN}=10V, R_G=6Ω	-	11	20	ns
t_r	Turn-on Rise Time		-	7	13	
$t_{d(OFF)}$	Turn-off Delay Time		-	29	53	
t_f	Turn-off Fall Time		-	6	11	
Gate Charge Characteristics[f]						
Q_g	Total Gate Charge	V_{DS}=15V, V_{GS}=10V, I_{DS}=4A	-	11.3		nC
Q_g	Total Gate Charge	V_{DS}=15V, V_{GS}=4.5V, I_{DS}=4A	-	6	11	
Q_{gth}	Threshold Gate Charge		-	1	-	
Q_{gs}	Gate-Source Charge		-	2	-	
Q_{gd}	Gate-Drain Charge		-	2.3	-	

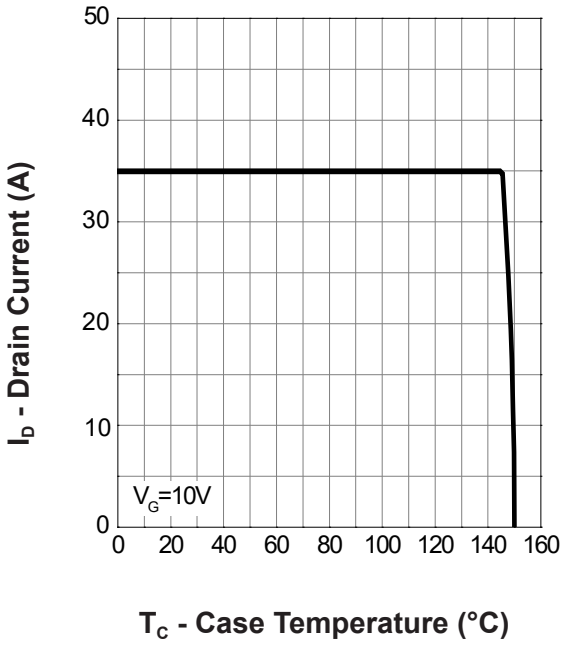
Note e : Pulse test ; pulse width≤300μs, duty cycle≤2%.
Note f : Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

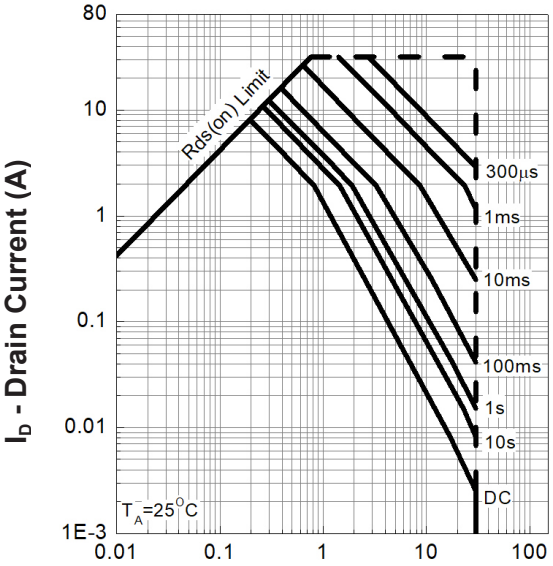
Power Dissipation



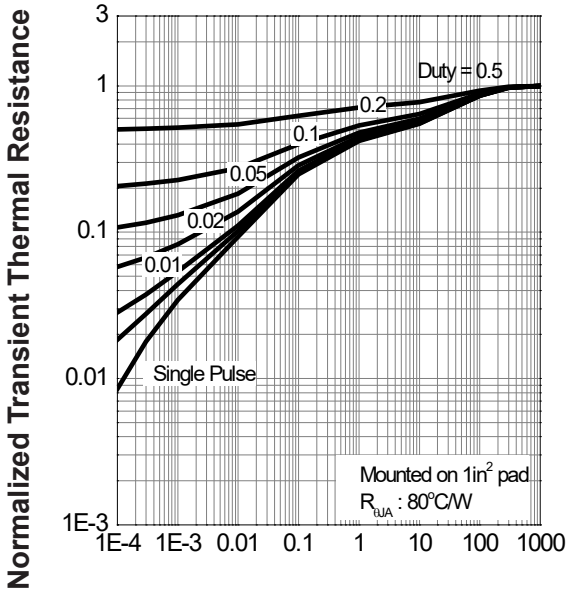
Drain Current



Safe Operation Area

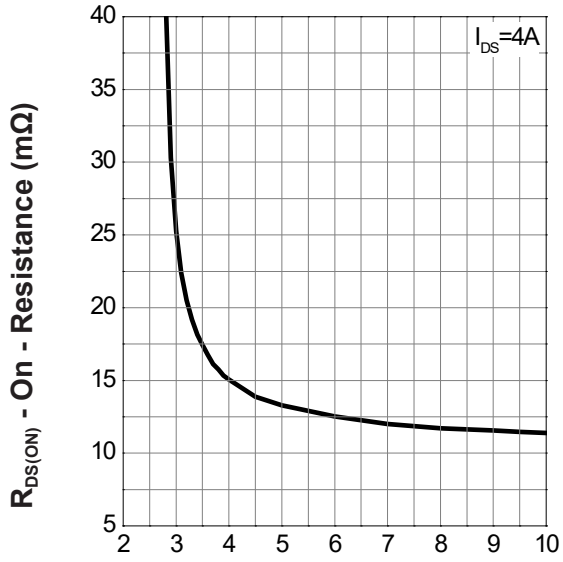


Thermal Transient Impedance

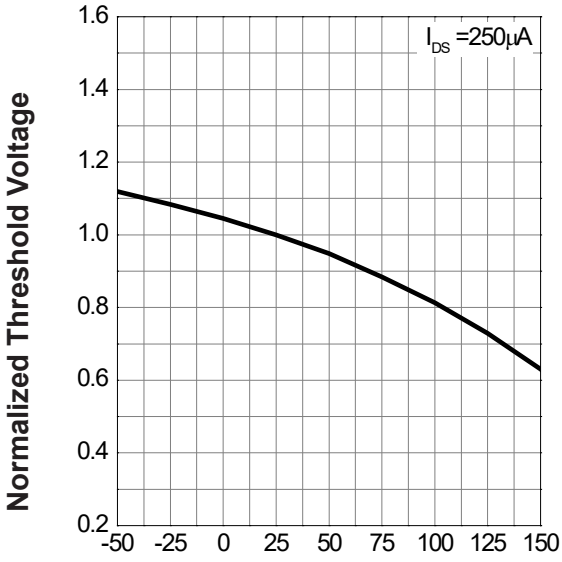


Typical Operating Characteristics(Cont.)

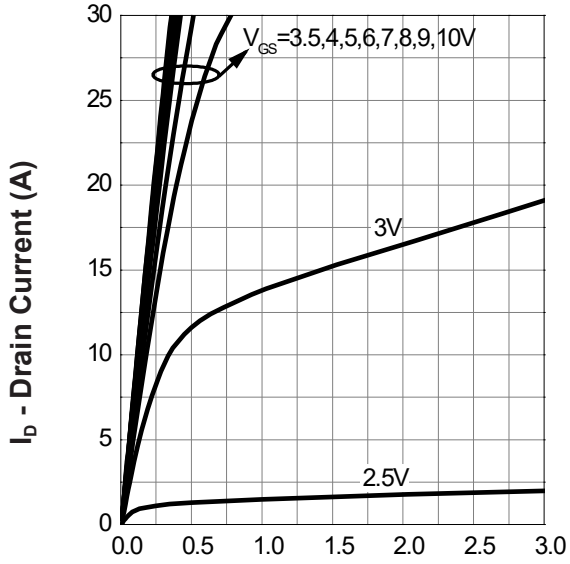
Gate-Source On Resistance



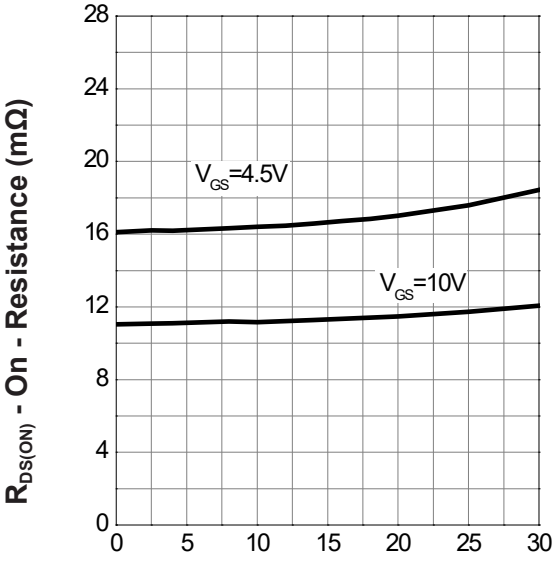
Gate Threshold Voltage



Output Characteristics

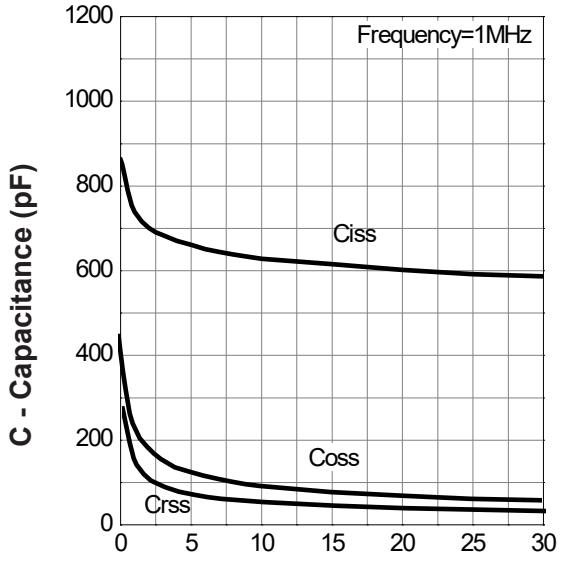


Drain-Source On Resistance

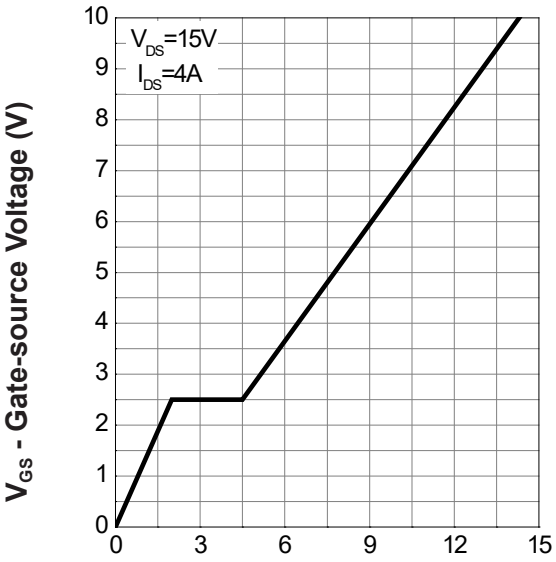


Typical Operating Characteristics(Cont.)

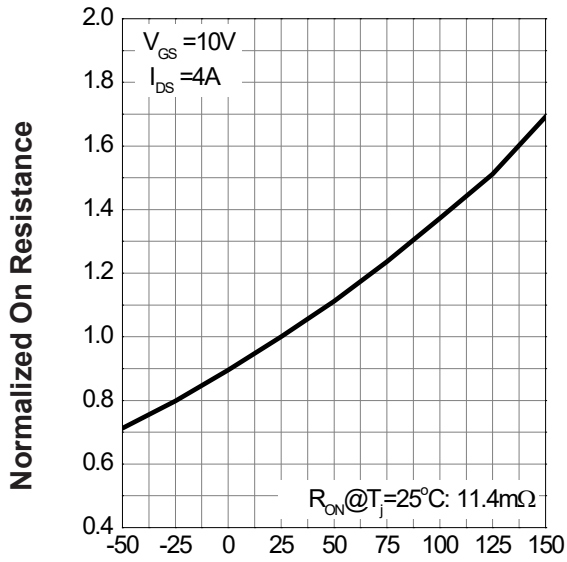
Capacitance



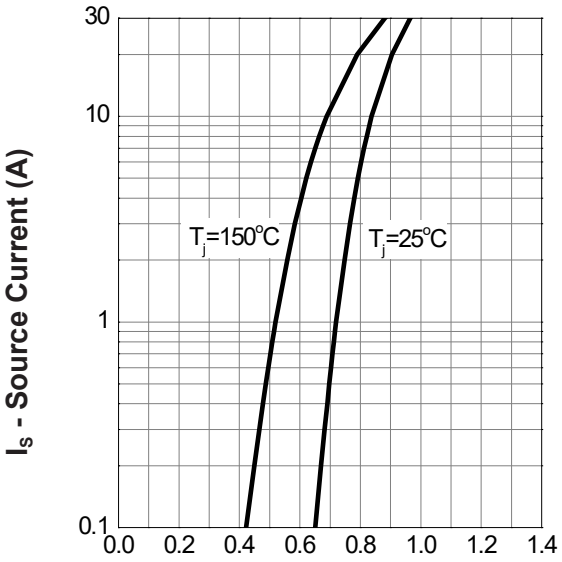
Gate Charge



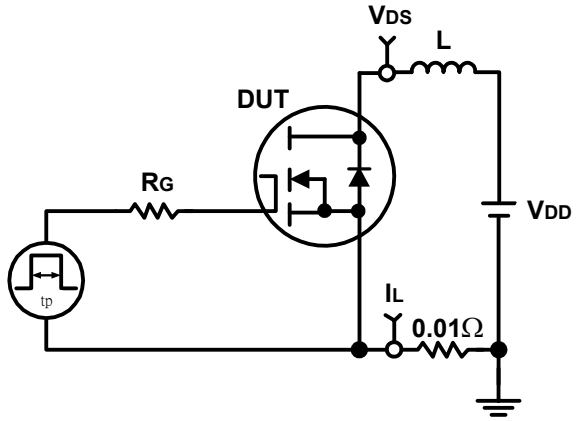
Drain-Source On Resistance

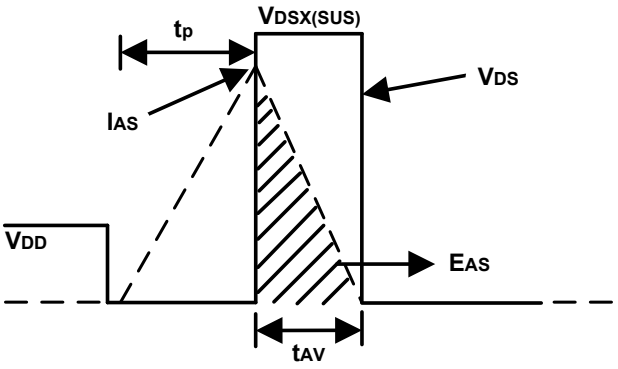


Source-Drain Diode Forward

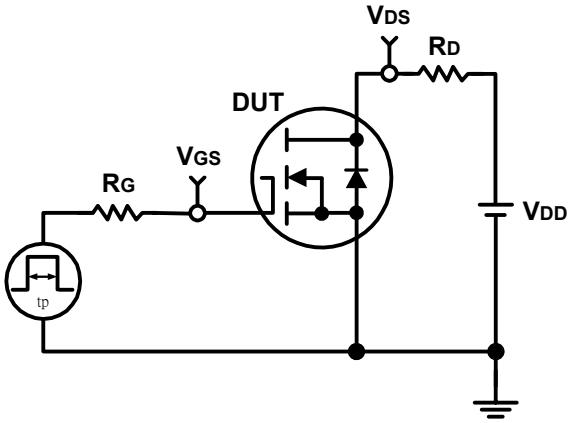


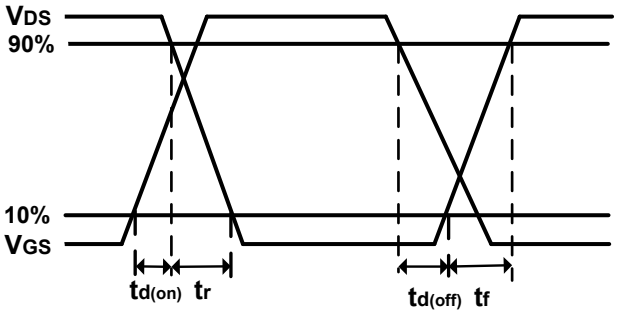
Avalanche Test Circuit and Waveforms





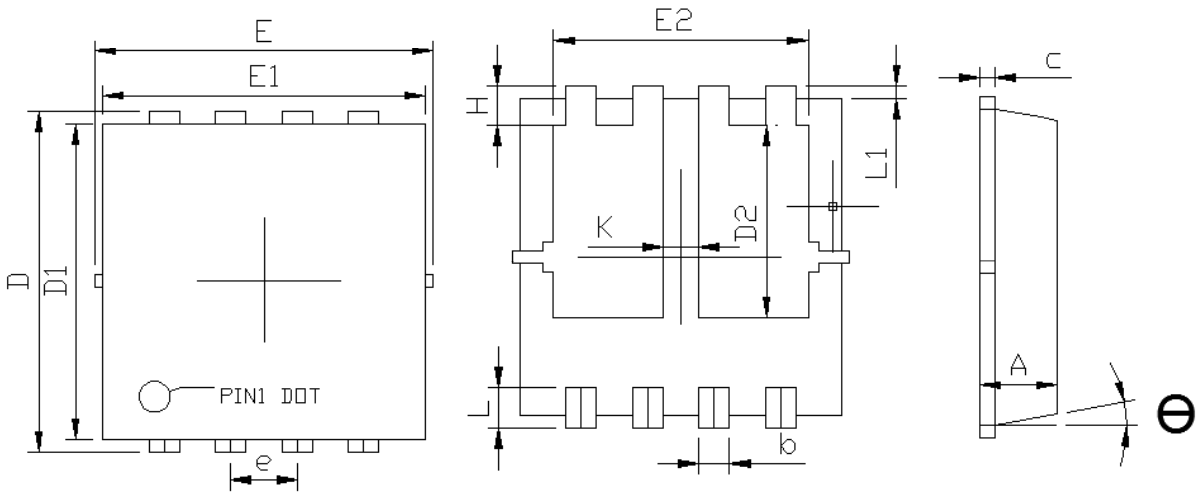
Switching Time Test Circuit and Waveforms





Package Information

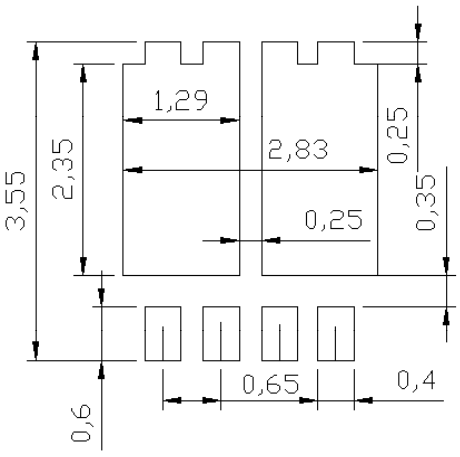
PDFN3.3*3.3-8L



Top View | Bottom View | Side View

SYMBOLS	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.70	0.80	0.028	0.031
b	0.25	0.35	0.010	0.014
c	0.10	0.25	0.004	0.010
D	3.25	3.45	0.128	0.136
D1	3.00	3.20	0.118	0.126
D2	1.78	1.98	0.070	0.078
E	3.20	3.40	0.126	0.134
E1	3.00	3.20	0.118	0.126
E2	2.39	2.59	0.094	0.102
e	0.65BSC		0.026 BSC	
H	0.30	0.50	0.012	0.020
L	0.30	0.50	0.012	0.020
L1	0.13 REF		0.005 REF	
K	0.30	-	0.012	-
θ	-	12°	-	12°

RECOMMENDED LAND PATTERN



UNIT: mm