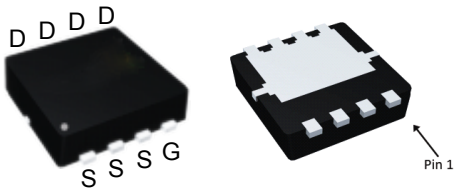
Features

- 30V/80A
  $R_{DS(ON)}$=3.2mΩ(typ.)@V_{GS}=10V
  $R_{DS(ON)}$=4.3mΩ(typ.)@V_{GS}=4.5V
- 100% UIS + R_g Tested
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)

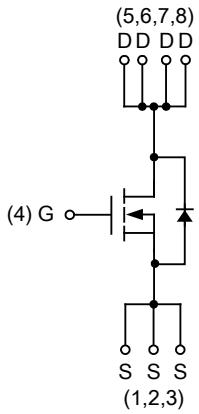
Applications

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

Pin Description



PDFN3.3x3.3-8L



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	80	A
I_D	Continuous Drain Current	T_C=25°C	80	A
		T_C=100°C	60	
I_{DM} [b]	Pulsed Drain Current	T_C=25°C	240	A
P_D	Maximum Power Dissipation	T_C=25°C	41.7	W
		T_C=100°C	16.7	
$R_{\theta JC}$	Thermal Resistance-Junction to Case	Steady State	3	°C/W
$R_{\theta JA}$ [c]	Thermal Resistance-Junction to Ambient	t ≤ 10s	45	°C/W
		Steady State	80	
I_{AS} [d]	Avalanche Current, Single pulse	L=0.1mH	30	A
E_{AS} [d]	Avalanche Energy, Single pulse	L=0.1mH	45	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).

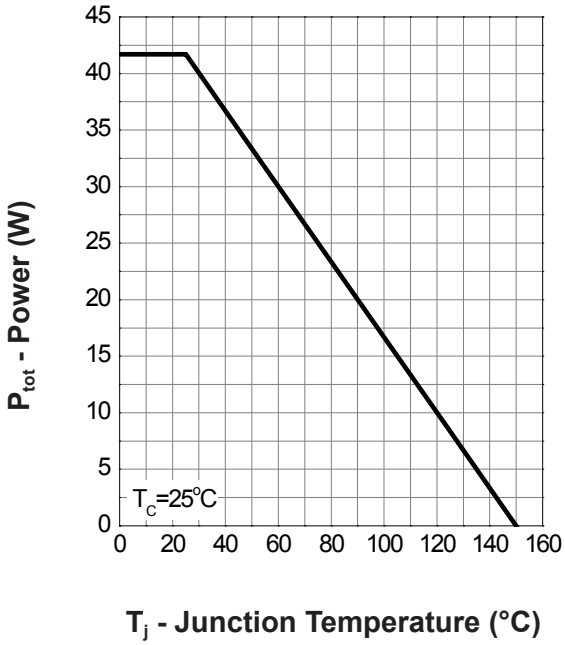
Electrical Characteristics (T_A = 25°C unless otherwise noted)

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	1.0	1.6	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}=12A	-	3.2	4.2	mΩ
		T_J=125°C	-	4.5	-	
		V_{GS}=4.5V, I_{DS}=9A	-	4.3	5.5	
Gfs	Forward Transconductance	V_{DS}=5V, I_{DS}=9A	-	18	-	S
Diode Characteristics						
V_{SD} [e]	Diode Forward Voltage	I_{SD}=10A, V_{GS}=0V	-	0.8	1.1	V
t_{rr}	Reverse Recovery Time	I_{SD}=12A, dI_{SD}/dt=100A/μs	-	33	-	ns
t_a	Charge Time		-	17.5	-	
t_b	Discharge Time		-	16	-	
Q_{rr}	Reverse Recovery Charge		-	24	-	nC
Dynamic Characteristics [f]						
R_G	Gate Resistance	V_{GS}=0V,V_{DS}=0V,F=1MHz	-	1	2	Ω
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=15V, Frequency=1.0MHz	-	1270	1651	pF
C_{oss}	Output Capacitance		-	740	-	
C_{rss}	Reverse Transfer Capacitance		-	63	-	
$t_{d(ON)}$	Turn-on Delay Time	V_{DD}=15V, R_L=15Ω, I_{DS}=1A, V_{GEN}=10V, R_G=6Ω	-	13	24	ns
t_r	Turn-on Rise Time		-	10	18	
$t_{d(OFF)}$	Turn-off Delay Time		-	27	49	
t_f	Turn-off Fall Time		-	32	58	
Gate Charge Characteristics [f]						
Q_g	Total Gate Charge	V_{DS}=15V, V_{GS}=10V, I_{DS}=12A	-	20	28	nC
Q_g	Total Gate Charge	V_{DS}=15V, V_{GS}=4.5V, I_{DS}=12A	-	8.8	-	
Q_{gth}	Threshold Gate Charge		-	2.2	-	
Q_{gs}	Gate-Source Charge		-	3.8	-	
Q_{gd}	Gate-Drain Charge		-	2	-	

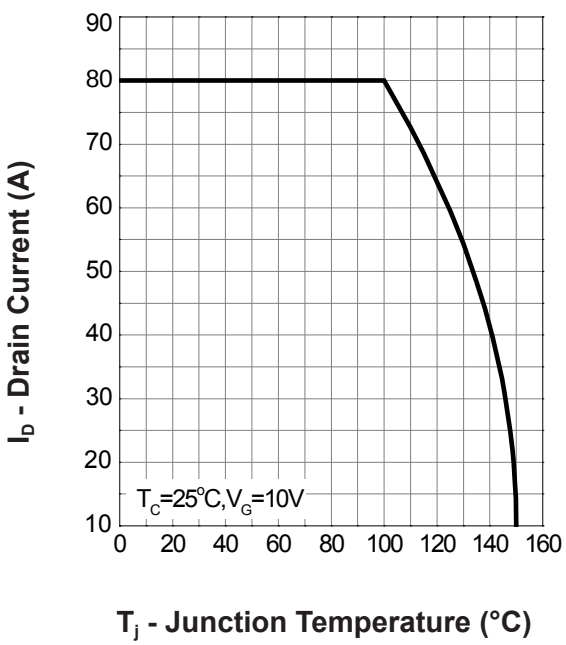
Note e：Pulse test ; pulse width≤300μs, duty cycle≤2%.
Note f：Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

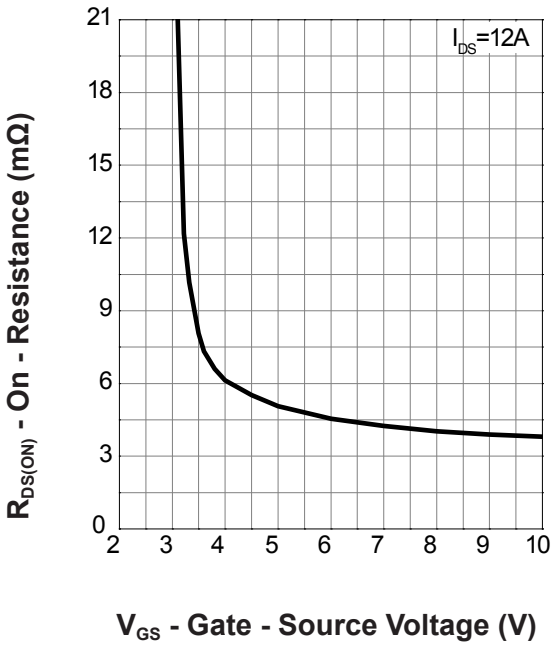
Power Dissipation



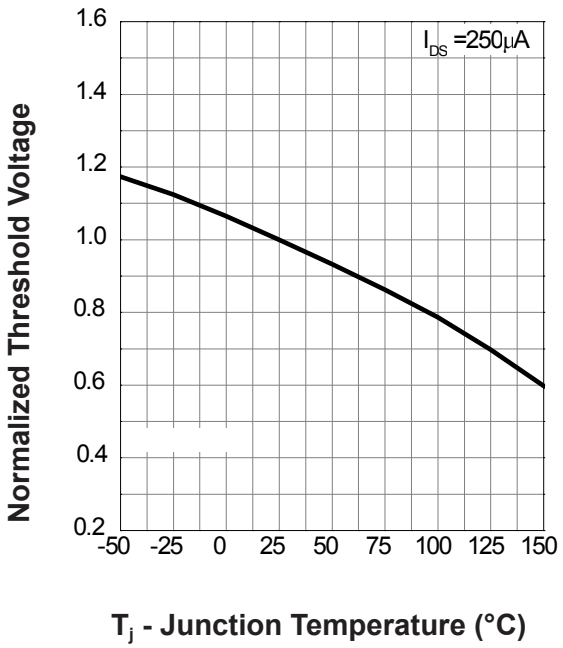
Drain Current



Gate-Source On Resistance

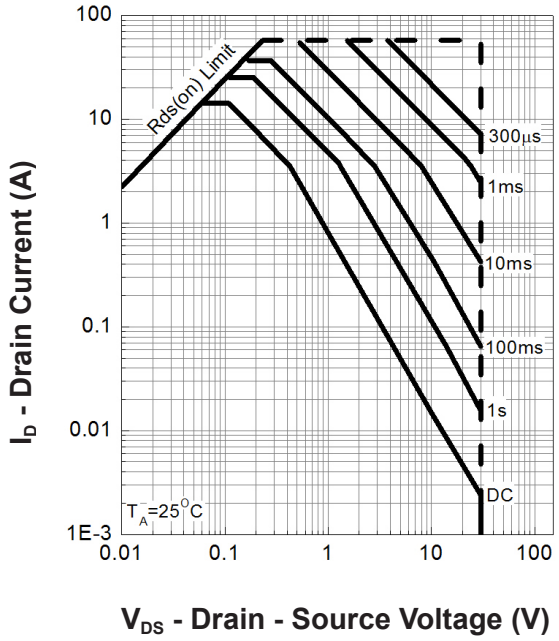


Gate Threshold Voltage

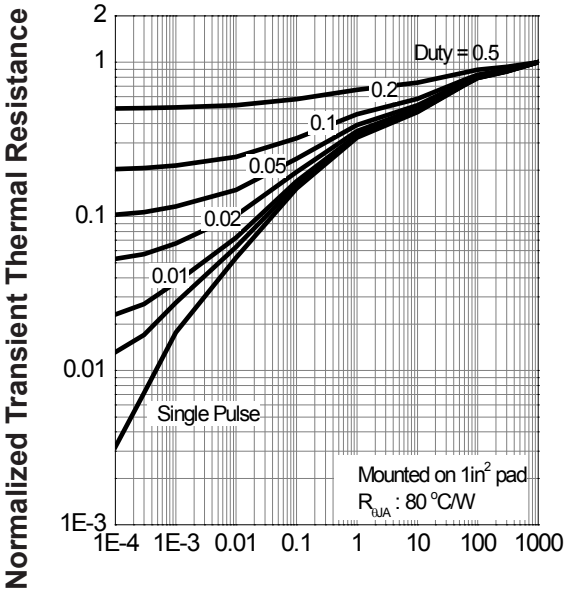


Typical Operating Characteristics(Cont.)

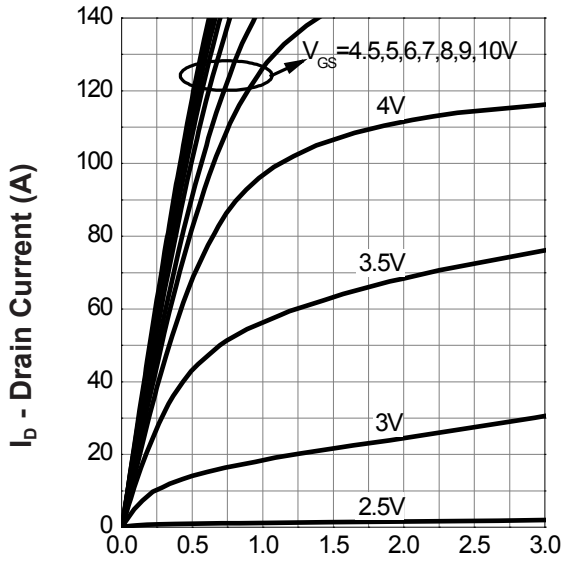
Safe Operation Area



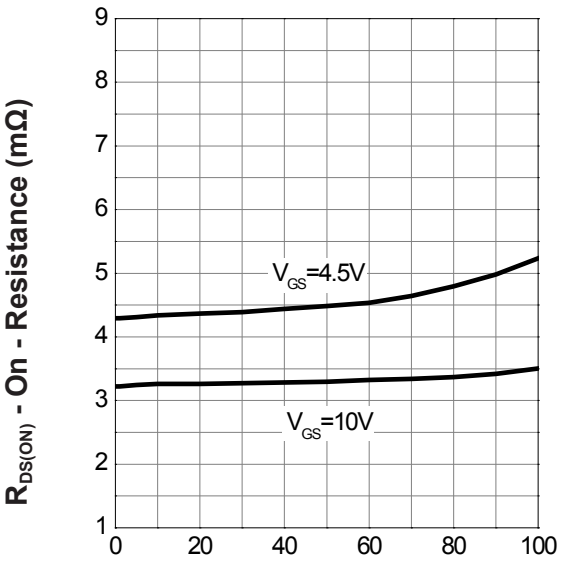
Thermal Transient Impedance



Output Characteristics

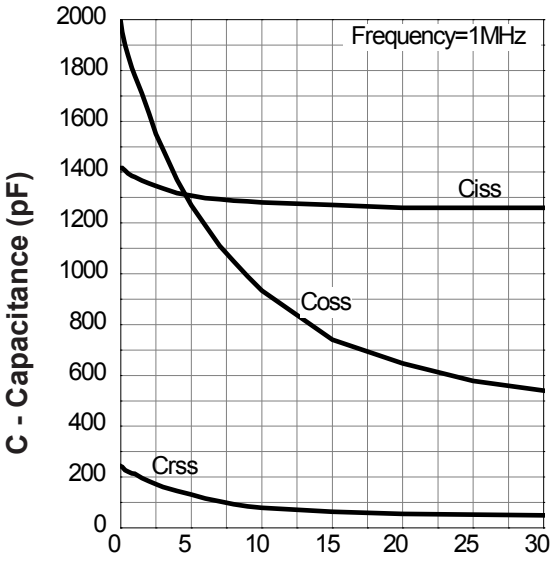


Drain-Source On Resistance

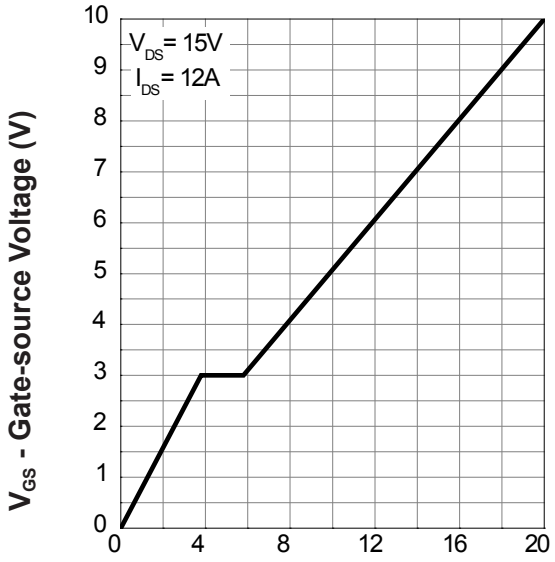


Typical Operating Characteristics(Cont.)

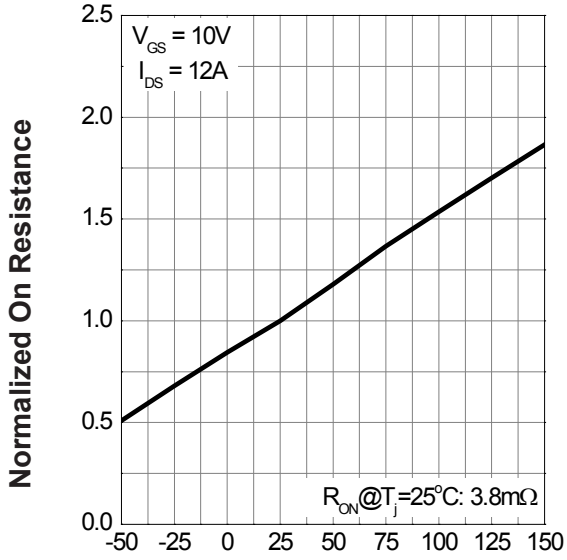
Capacitance



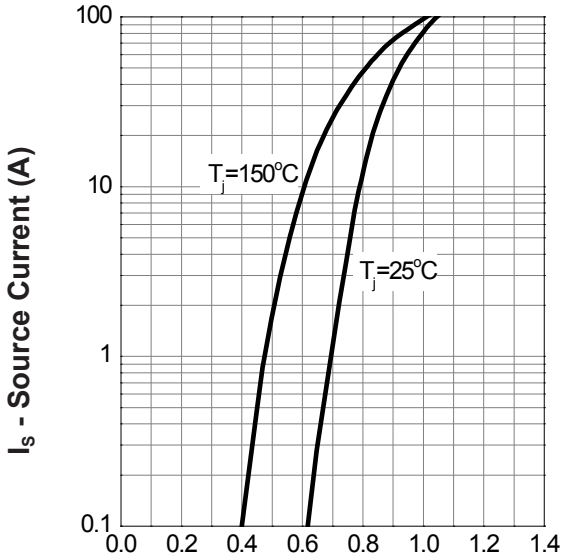
Gate Charge



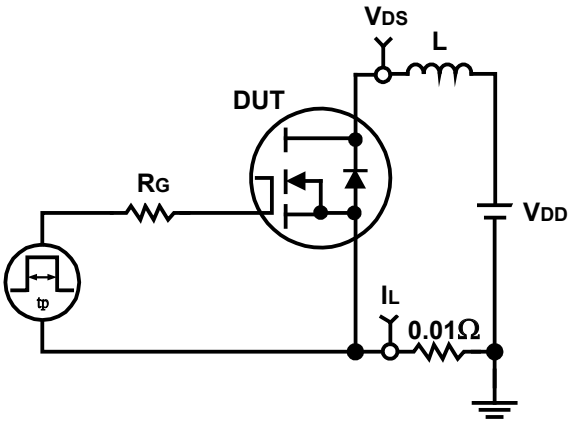
Drain-Source On Resistance

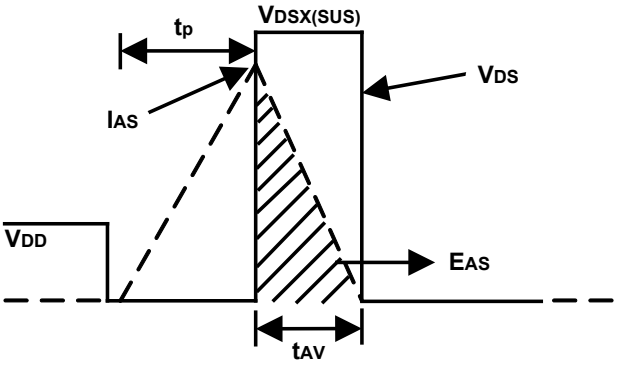


Source-Drain Diode Forward

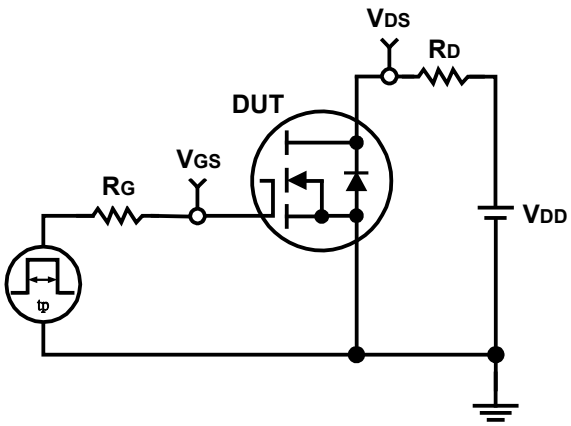


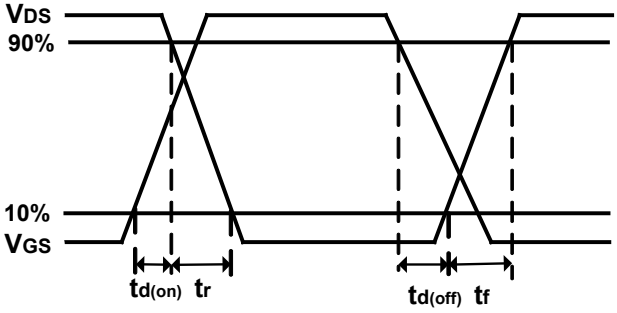
Avalanche Test Circuit and Waveforms





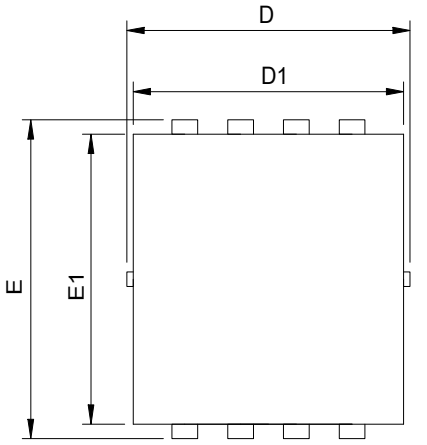
Switching Time Test Circuit and Waveforms



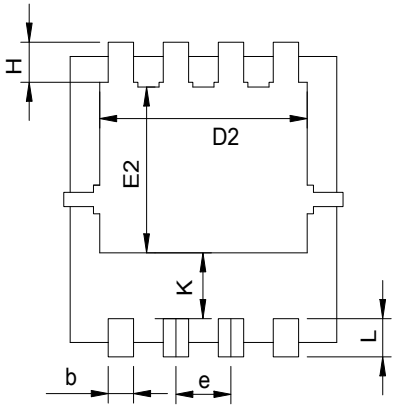


Package Information

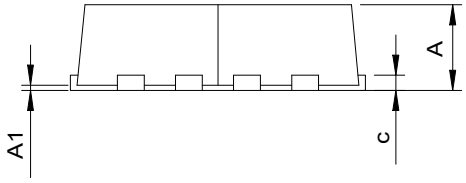
PDFN3.3x3.3-8L



Top View



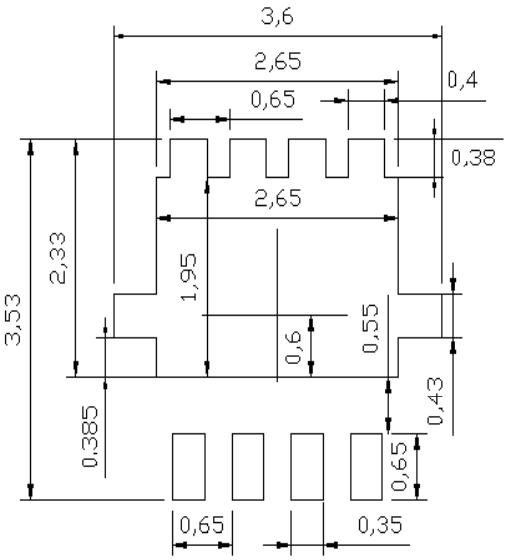
Bottom View



Side View

SYMBOL	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.70	1.00	0.028	0.039
A1	0.00	0.05	0.000	0.002
b	0.25	0.35	0.010	0.014
c	0.10	0.25	0.004	0.010
D	3.10	3.50	0.122	0.138
D1	3.05	3.25	0.120	0.128
D2	2.35	2.59	0.093	0.102
E	3.10	3.50	0.122	0.138
E1	2.90	3.10	0.114	0.122
E2	1.64	1.98	0.065	0.078
e	0.65 BSC		0.026 BSC	
H	0.32	0.52	0.013	0.020
K	0.59	0.79	0.023	0.031
L	0.25	0.55	0.010	0.022

RECOMMENDED LAND PATTERN



UNIT: mm