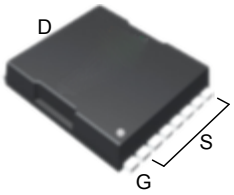
Features

- 120V/88A
  $R_{DS(ON)}$=7mΩ(typ.)@V_{GS}=10V
  $R_{DS(ON)}$=9mΩ(typ.)@V_{GS}=4.5V
- 100% UIS + R_g Tested
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)
- Moisture Sensitivity Level MSL1 (per JEDEC J-STD-020D)

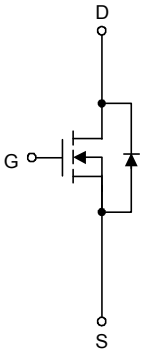
Applications

- Power Management for SMPS Adaptor and QC3.0 Charger Synchronous Rectification.

Pin Description



TO-LL



N-Channel MOSFET

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

Symbol	Parameter		Rating	Unit
Common Ratings				
V_{DSS}	Drain-Source Voltage		120	V
V_{GSS}	Gate-Source Voltage		±20	
T_J	Maximum Junction Temperature		175	°C
T_{STG}	Storage Temperature Range		-55 to 175	
I_S	Diode Continuous Forward Current	T_C=25°C	88	A
I_D	Continuous Drain Current	T_C=25°C	88	A
		T_C=100°C	35	
I_{DM} [a]	Pulsed Drain Current	T_C=25°C	264	
P_D	Maximum Power Dissipation	T_C=25°C	300	W
		T_C=100°C	150	
$R_{\theta JC}$	Thermal Resistance-Junction to Case		0.5	°C/W
I_D	Continuous Drain Current	T_A=25°C	13	A
		T_A=70°C	11	
P_D	Maximum Power Dissipation	T_A=25°C	2.7	W
		T_A=70°C	1.9	
$R_{\theta JA}$ [c]	Thermal Resistance-Junction to Ambient		55	°C/W
I_{AS} [b]	Avalanche Current, Single pulse	L=0.5mH	50	A
E_{AS} [b]	Avalanche Energy, Single pulse	L=0.5mH	625	mJ

Note * : Current limited by bonding wire.
Note a : Pulse width limited by maximum junction temperature.
Note b : UIS tested and pulse width limited by maximum junction temperature (initial temperature T_j=25°C).
Note c : Surface mounted on 1in^2 pad area.

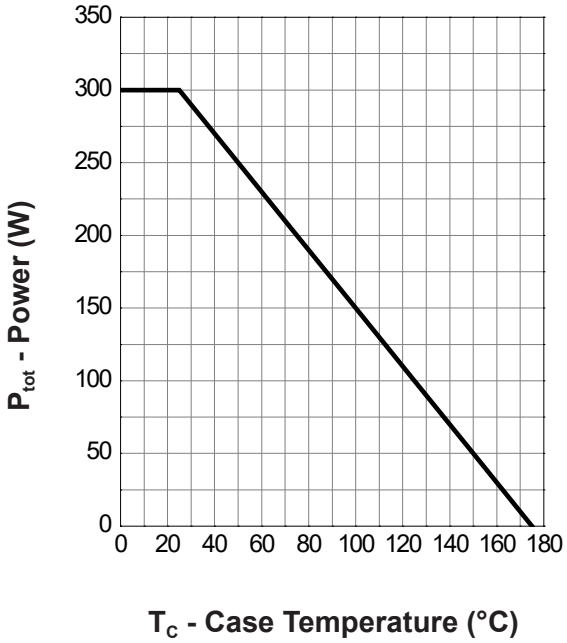
Electrical Characteristics (T_A = 25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_{DS}=250μA	120	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=96V, 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	3	V
I_{GSS}	Gate Leakage Current	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
$R_{DS(ON)}$ [d]	Drain-Source On-state Resistance	V_{GS}=10V, I_{DS}=50A	-	7	8.5	mΩ
		V_{GS}=4.5V, I_{DS}=30A	-	9	11	mΩ
Diode Characteristics						
V_{SD} [d]	Diode Forward Voltage	I_{SD}=35A, V_{GS}=0V	-	0.8	1.1	V
t_{rr}	Reverse Recovery Time	I_{SD}=50A, dI_{SD}/dt=100A/μs	-	62	-	ns
Q_{rr}	Reverse Recovery Charge		-	164	-	nC
Dynamic Characteristics [e]						
R_G	Gate Resistance	V_{GS}=0V,V_{DS}=0V,F=1MHz	-	1.5	-	Ω
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=60V, Frequency=1.0MHz	-	8240	9360	pF
C_{oss}	Output Capacitance		-	780	-	
C_{rss}	Reverse Transfer Capacitance		-	200	-	
$t_{d(ON)}$	Turn-on Delay Time	V_{DD}=30V, R_L=30Ω, I_{DS}=1A, V_{GEN}=10V, R_G=6Ω	-	20	36	ns
t_r	Turn-on Rise Time		-	12	22	
$t_{d(OFF)}$	Turn-off Delay Time		-	81	146	
t_f	Turn-off Fall Time		-	110	198	
Gate Charge Characteristics [e]						
Q_g	Total Gate Charge	V_{DS}=60V, V_{GS}=10V, I_{DS}=50A	-	66	92	nC
Q_g	Total Gate Charge	V_{DS}=60V, V_{GS}=4.5V, I_{DS}=50A	-	30	42	
Q_{gs}	Gate-Source Charge		-	16	-	
Q_{gd}	Gate-Drain Charge		-	10	-	

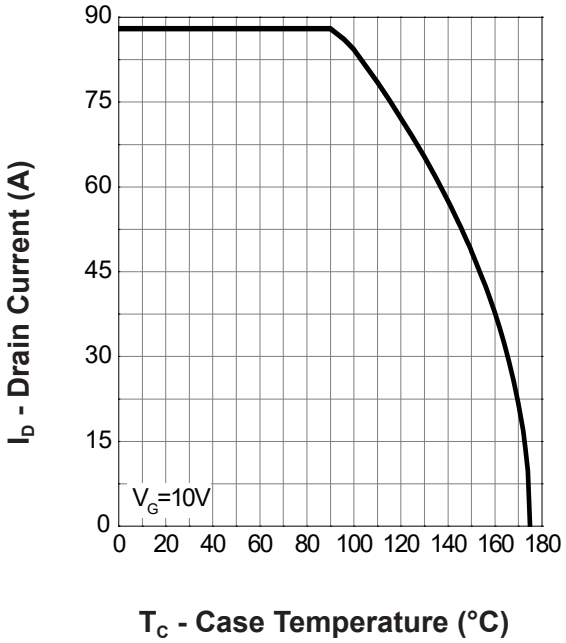
Note d：Pulse test ; pulse width≤300μs, duty cycle≤2%.
Note e：Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

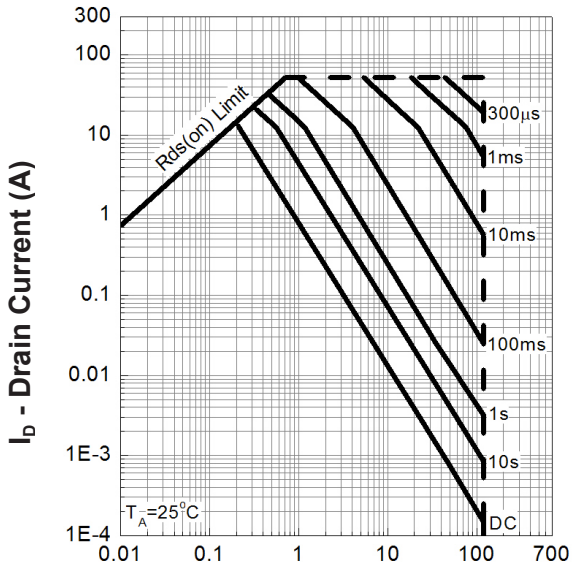
Power Dissipation



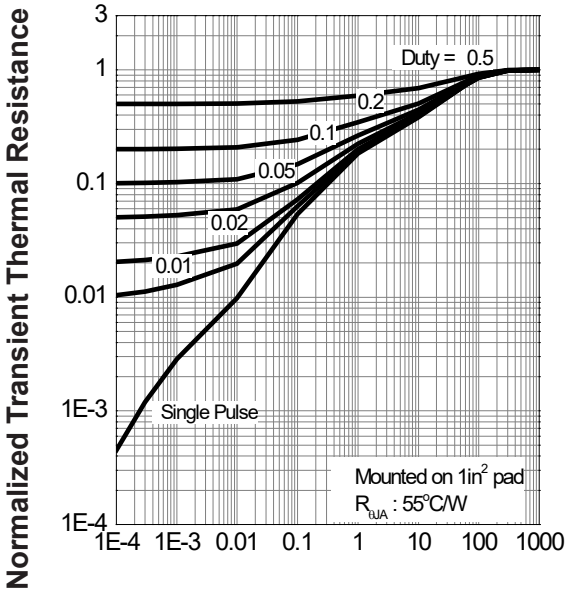
Drain Current



Safe Operation Area

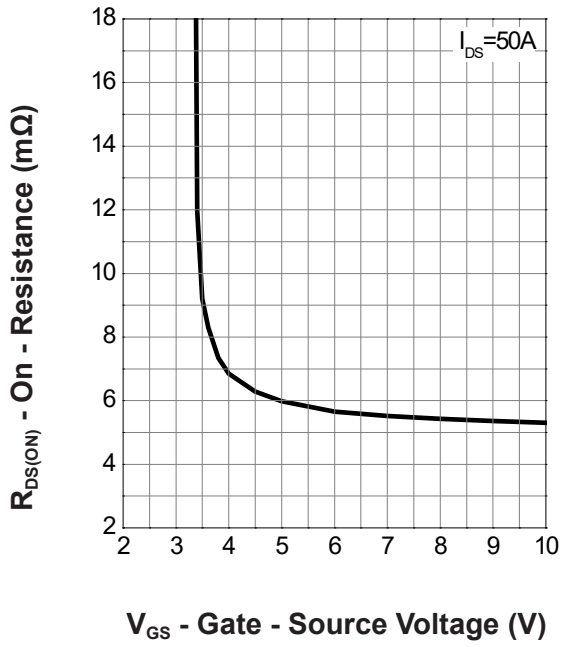


Thermal Transient Impedance

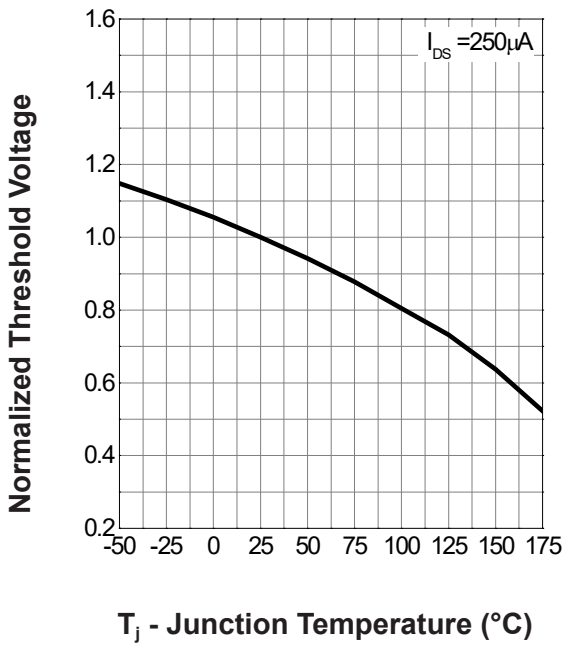


Typical Operating Characteristics(Cont.)

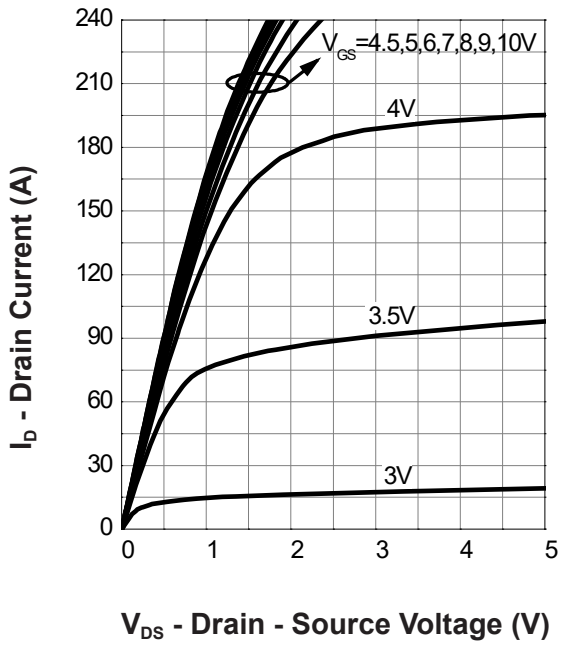
Gate-Source On Resistance



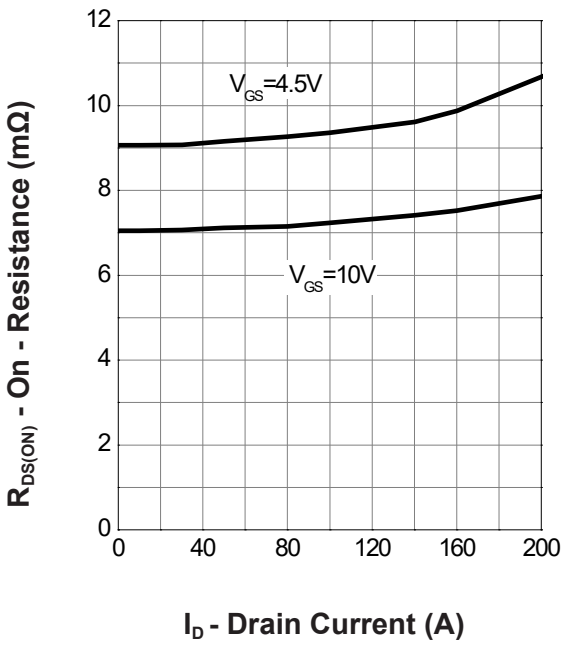
Gate Threshold Voltage



Output Characteristics

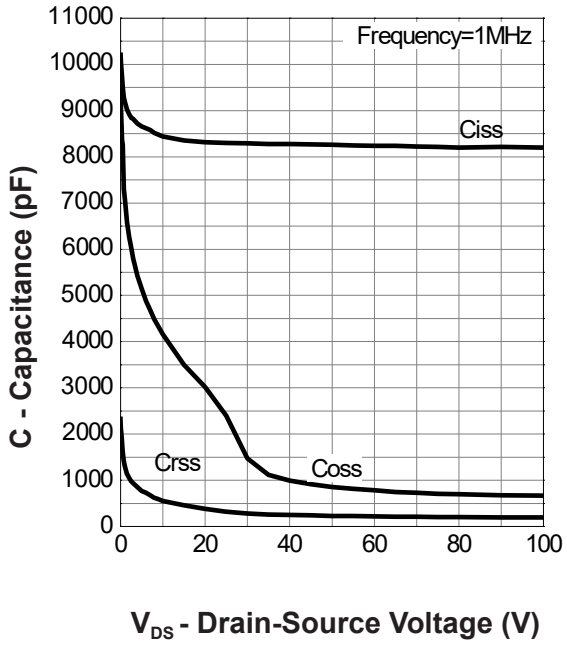


Drain-Source On Resistance

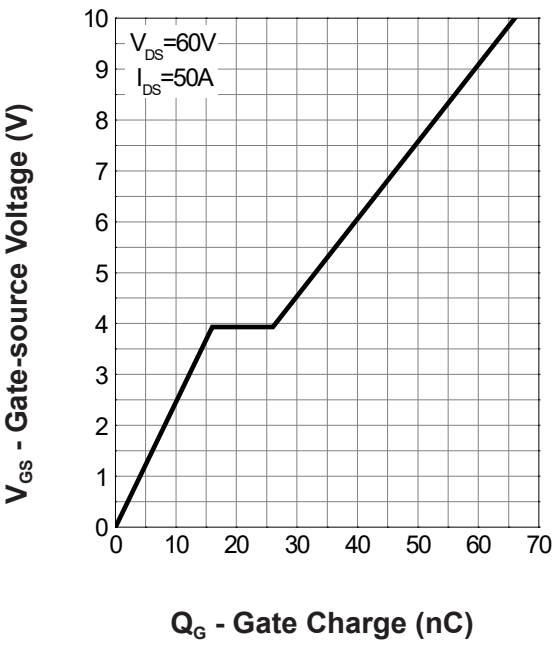


Typical Operating Characteristics(Cont.)

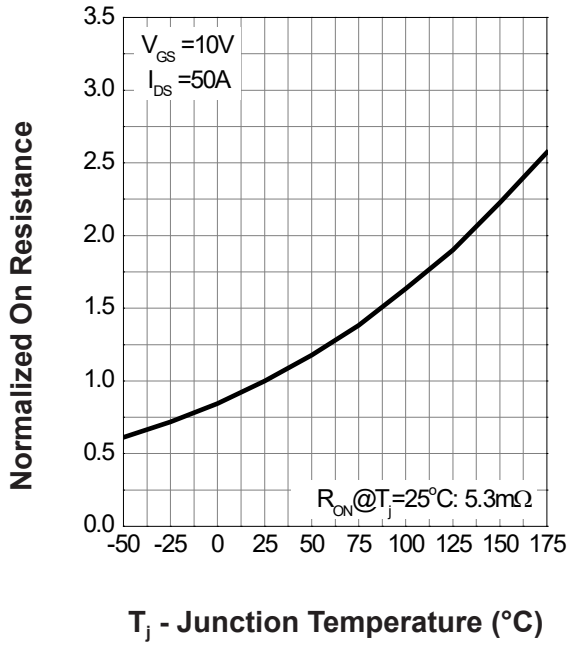
Capacitance



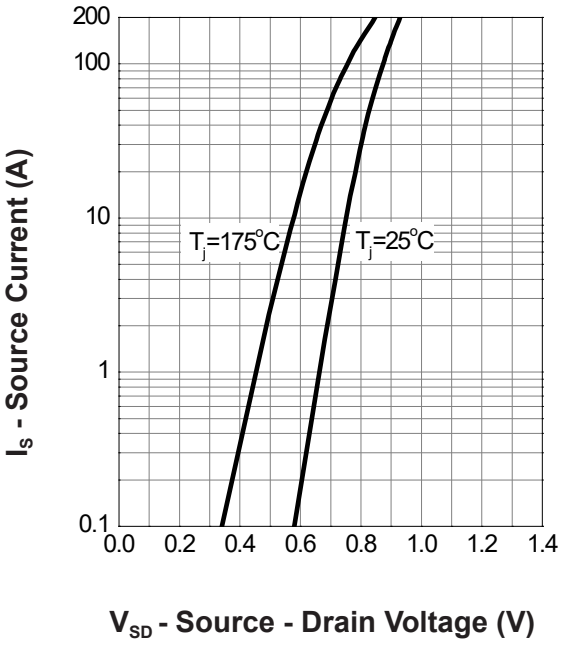
Gate Charge



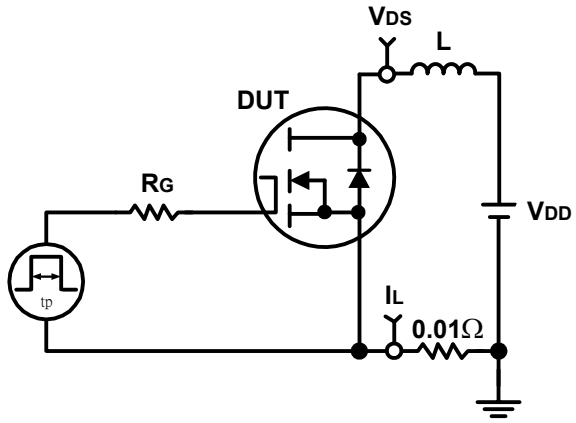
Drain-Source On Resistance

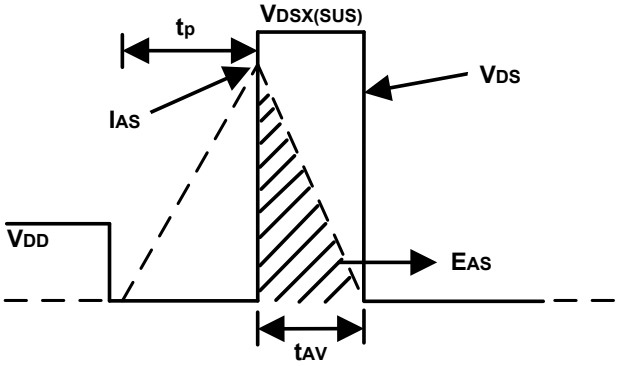


Source-Drain Diode Forward

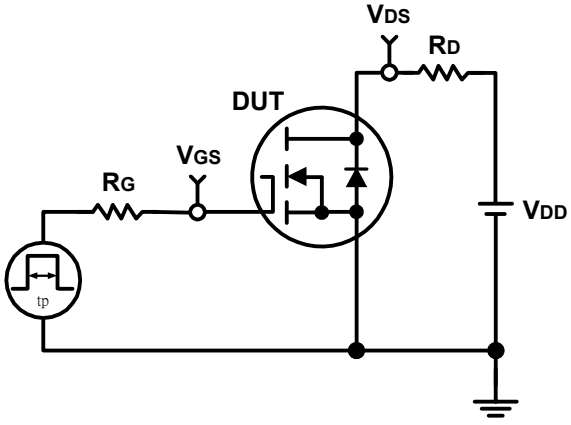


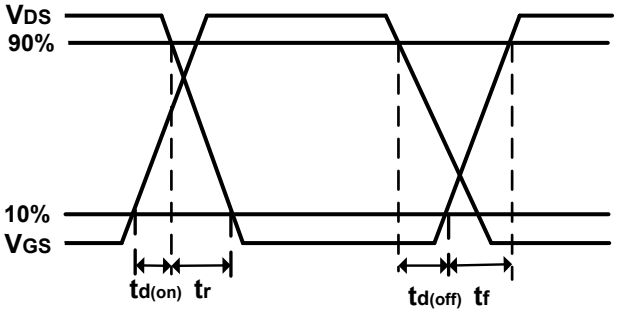
Avalanche Test Circuit and Waveforms





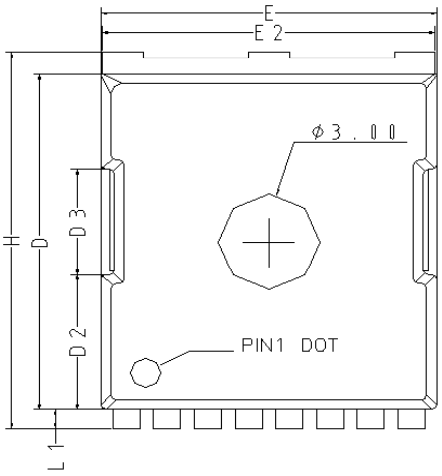
Switching Time Test Circuit and Waveforms



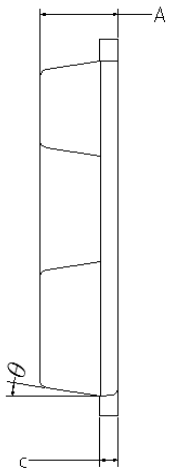


Package Information

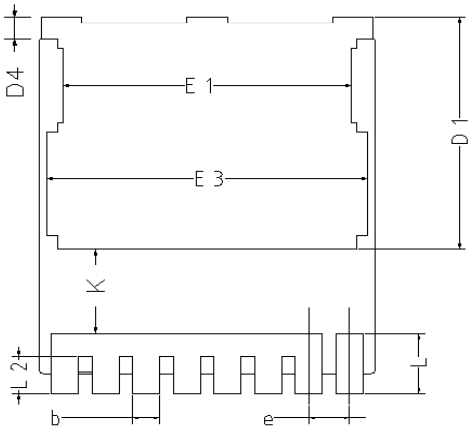
TOLL



Top View



Side View

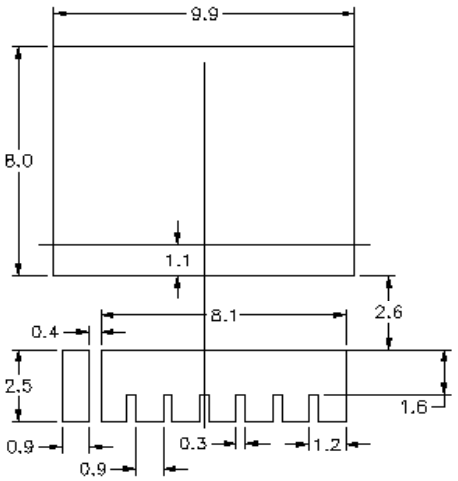


Bottom View

Side View

SYMBOLS	TO-LL			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	2.20	2.40	0.087	0.094
b	0.70	0.90	0.028	0.035
c	0.40	0.60	0.016	0.024
D	10.23	10.63	0.403	0.419
D1	7.05	7.45	0.278	0.293
D2	3.98	4.38	0.157	0.172
D3	3.10	3.50	0.122	0.138
D4	0.50	0.90	0.020	0.035
E	9.70	10.10	0.382	0.398
E1	8.30	8.70	0.327	0.343
E2	9.60	10.00	0.378	0.394
E3	9.26	9.66	0.365	0.380
H	11.53	11.93	0.454	0.470
e	1.2 BSC		0.0472 BSC	
K	2.43	2.83	0.096	0.111
L	1.65	2.05	0.065	0.081
L1	0.40	0.80	0.016	0.031
L2	0.95	1.35	0.037	0.053
θ	6°	10°	6°	10°

RECOMMENDED LAND PATTERN



UNIT: mm