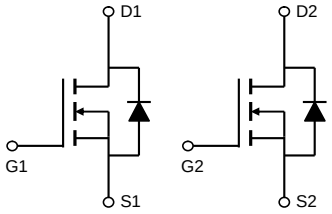
EFM6802L2X

Dual N-Channel Advanced MOSFET

• Product Summary

Part #	V_{DS}	$R_{DS(on).typ}$ ($@V_{GS}$=10V)	$R_{DS(on).typ}$ ($@V_{GS}$=4.5V)	I_D
EFM6802L2X	30V	31mΩ	40mΩ	3.5A



Dual N-Channel MOSFET

• Description

- The EFM6802L2X is the high cell density trenched
- Dual N-ch MOSFETs which provide excellent
- RDSON and gate cherge for most of the
- synchronous buck converter applications.
- The EFM6802L2X meet the RoHS and Green
- Prod uct requirement, 100 % EAS guaranteed
- with full function reliability approved.

SOT-23-6L

•Application

- Super Low Gate Charge 100% EAS Guaranteed
- Green Device Available Excellent CdV/dt effect decline
- Advanced high cell density Trench technology

•Ordering Information:

Part NO.	EFM6802L2X
Marking	H2****
Packing Information	REEL TAPE
Basic ordering unit (pcs)	3000

•Absolute Maximum Ratings (T_C=25℃)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	3.5	A
Drain Current-Pulsed (Note 1)	I_{DM}	20	A
Maximum Power Dissipation	P_D	1.2	W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 To 150	℃

•Thermal Characteristic

Thermal Resistance,Junction-to-Ambient (Note 2)	$R_{\theta JA}$	110	℃/W

● Static Electrical Characteristics @ T_J = 25°C (unless otherwise stated)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250uA	30	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V V_{GS}=0V	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V V_{DS}=0V	--	--	±100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250uA	1.0	1.5	2.5	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V I_D=3.5A	--	31	42	mΩ
		V_{GS}=4.5V I_D=3A	--	40	50	mΩ
Forward Transconductance	g_{FS}	V_{DS}=5V I_D=3.5A	--	12	--	S
Dynamic Characteristics (Note4)						
Input Capacitance	C_{lss}	V_{DS}=15V V_{GS}=0V F=1.0MHz	--	170	--	PF
Output Capacitance	C_{oss}		--	35	--	PF
Reverse Transfer Capacitance	C_{rss}		--	23	--	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=15V I_D=3.5A V_{GS}=10V R_G=3Ω,	--	4.5	--	nS
Turn-on Rise Time	t_r		--	1.5	--	nS
Turn-Off Delay Time	$t_{d(off)}$		--	18.5	--	nS
Turn-Off Fall Time	t_f		--	15.5	--	nS
Total Gate Charge	Q_g	V_{DS}=15V I_D=3.5A V_{GS}=10V	--	4	--	nC
Gate-Source Charge	Q_{gs}		--	0.55	--	nC
Gate-Drain Charge	Q_{gd}		--	1	--	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V_{SD}	V_{GS}=0V I_S=3.5A	--	0.75	1.2	V
Diode Forward Current (Note 2)	I_S		--	--	3.5	A

Notes:

a. Surface Mounted on FR4 Board ,T<10 sec ;

• Typical Characteristics

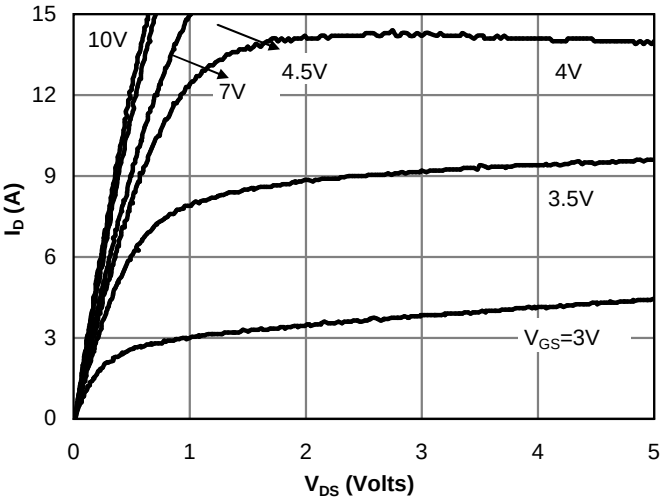


Fig 1: On-Region Characteristics (Note E)

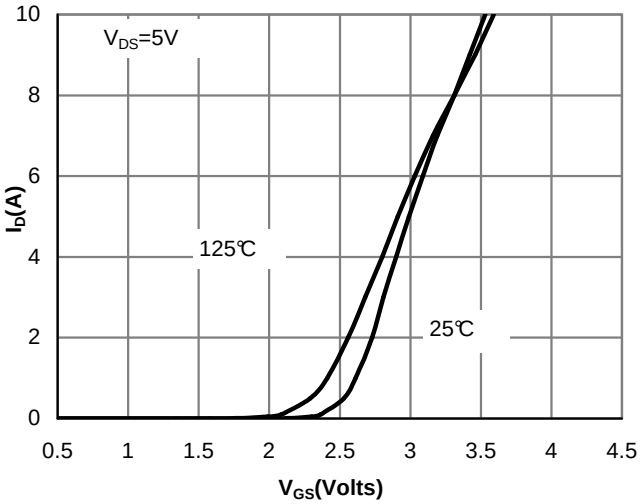


Figure 2: Transfer Characteristics (Note E)

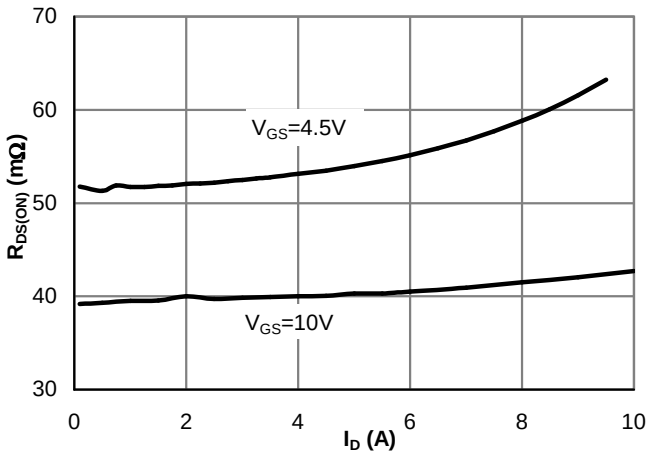


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

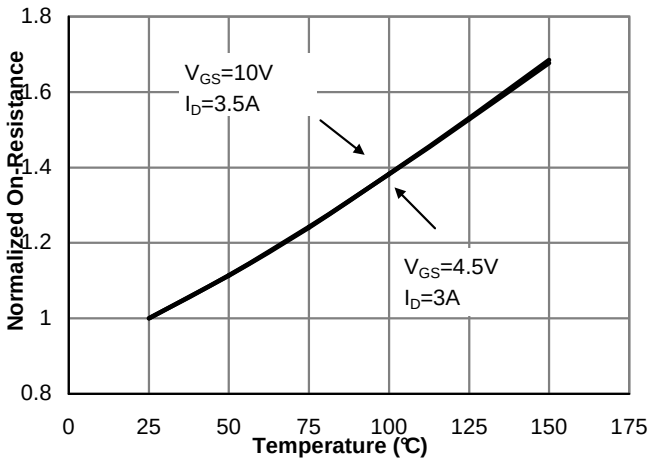


Figure 4: On-Resistance vs. Junction Temperature (Note E)

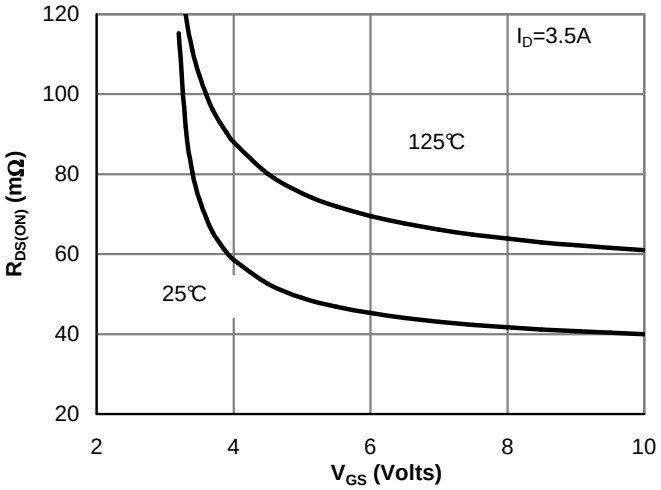


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

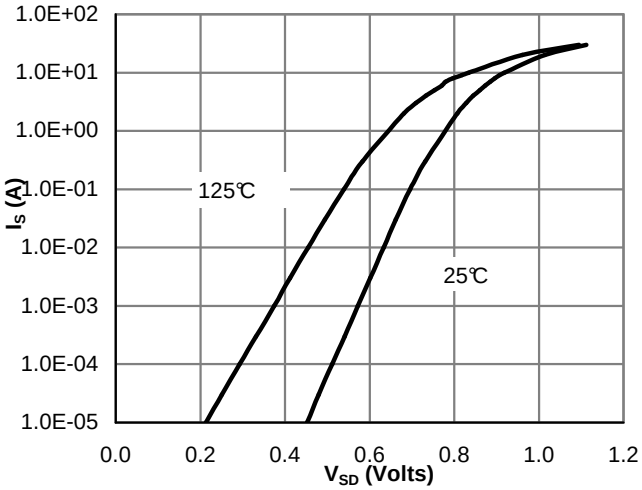


Figure 6: Body-Diode Characteristics (Note E)

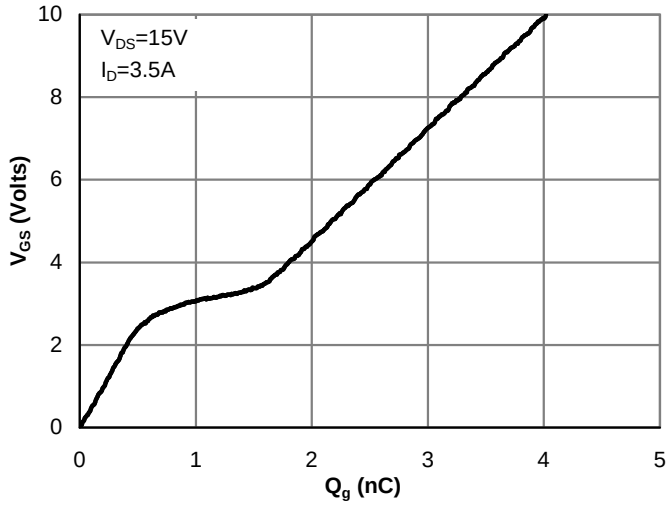


Figure 7: Gate-Charge Characteristics

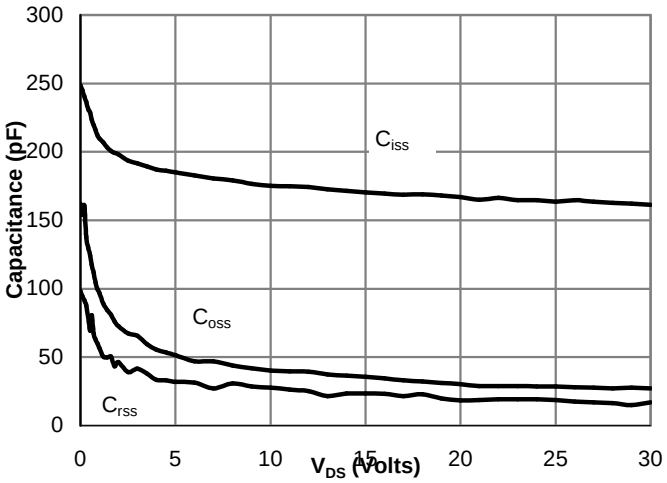


Figure 8: Capacitance Characteristics

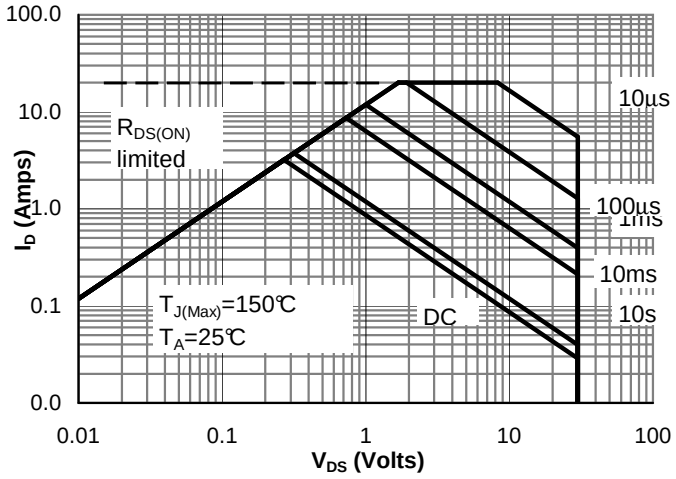


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

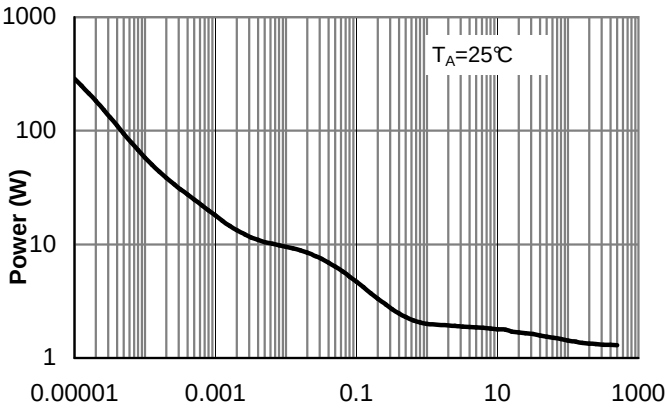


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note F)

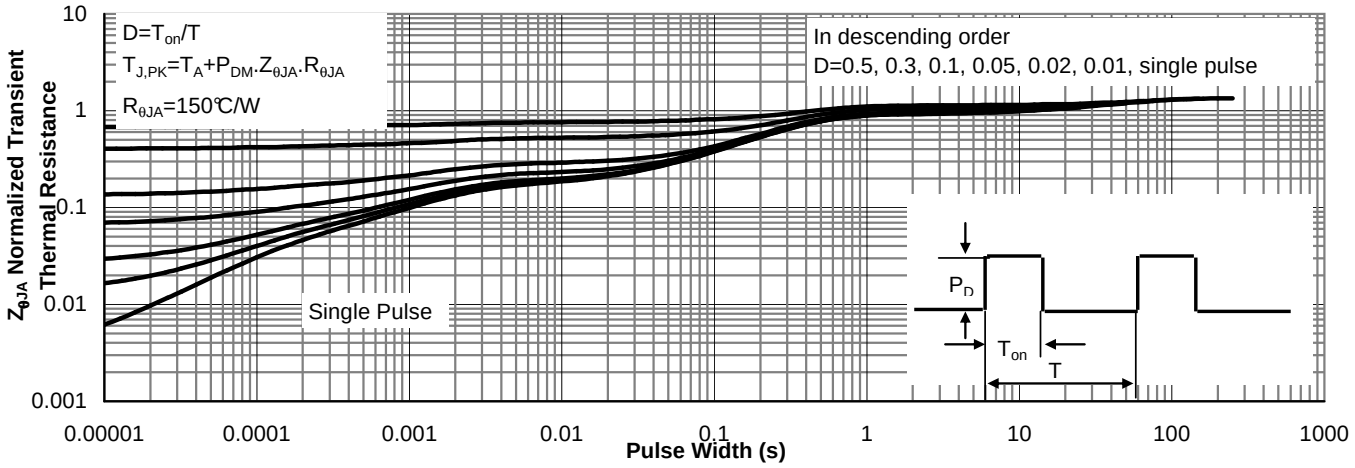
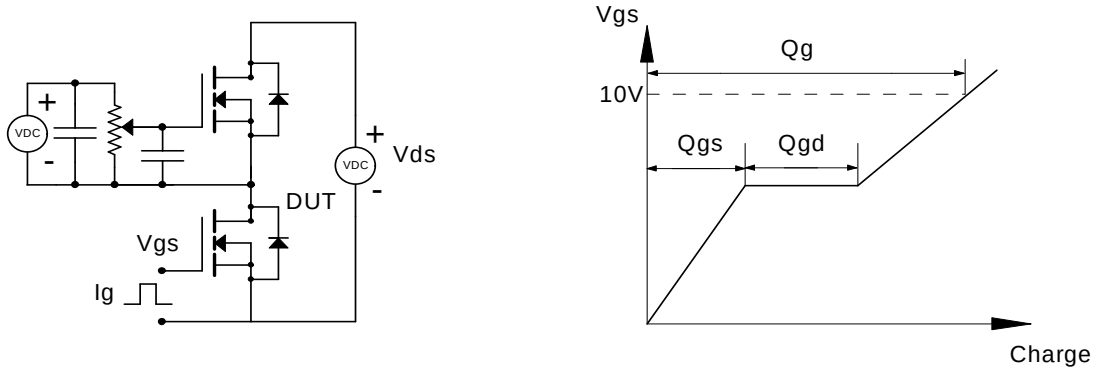


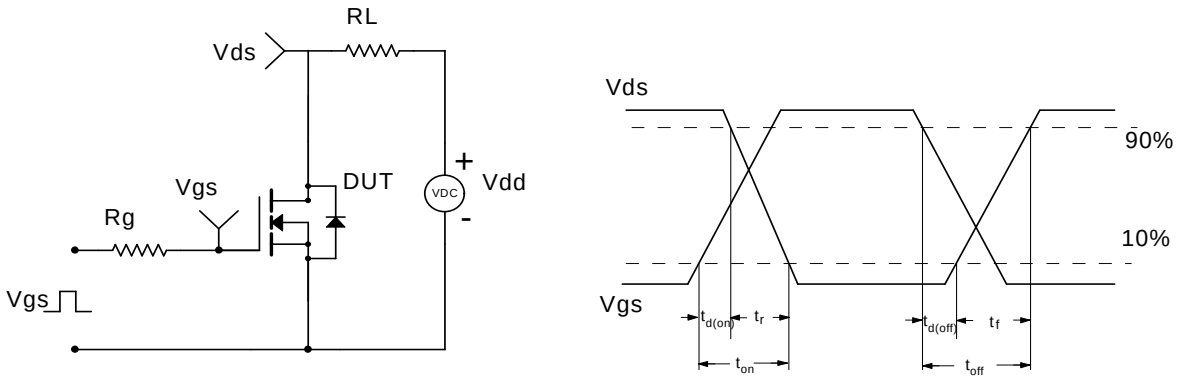
Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)

• Test circuit

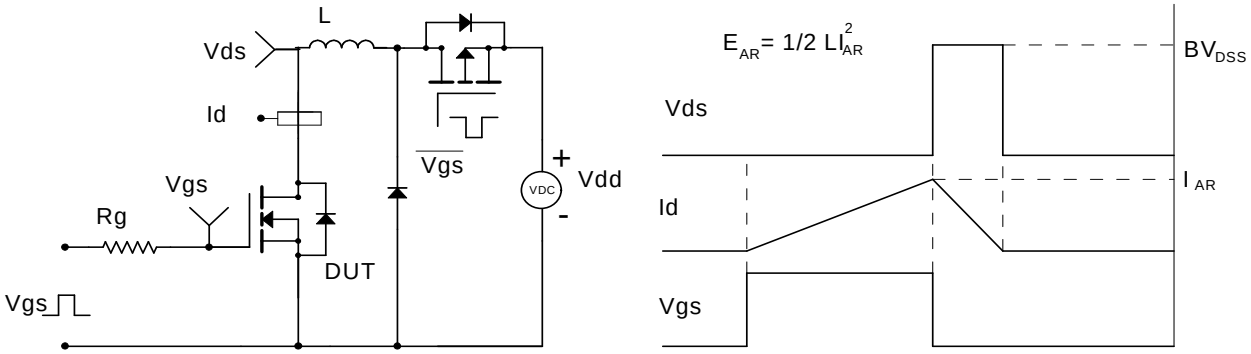
Gate Charge Test Circuit & Waveform



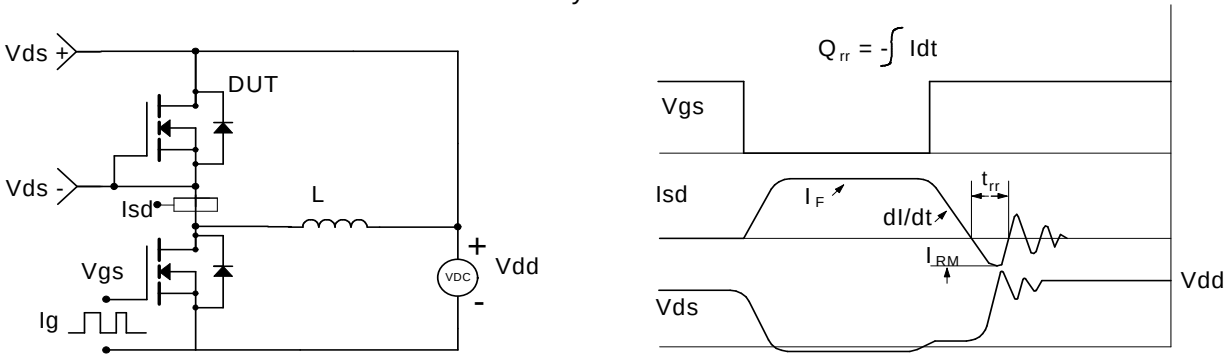
Resistive Switching Test Circuit & Waveforms



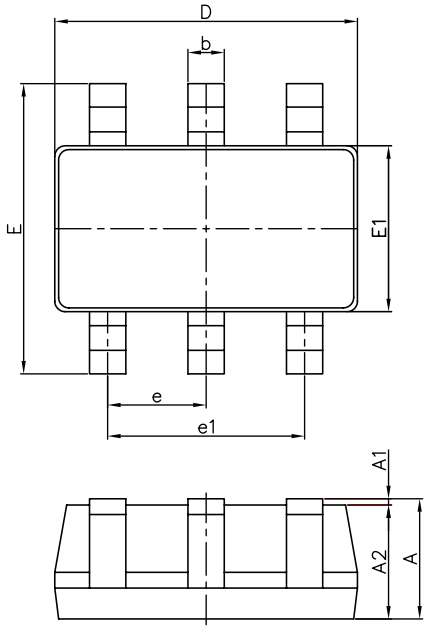
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

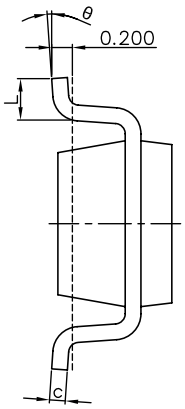


Diode Recovery Test Circuit & Waveforms

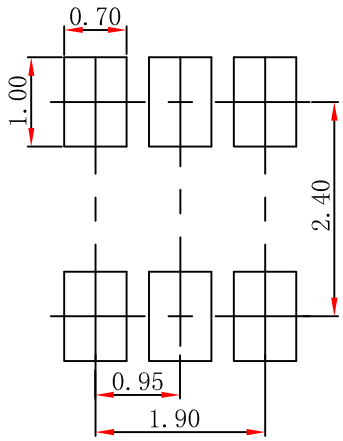


SOT-23-6L Package Outline Dimensions





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.