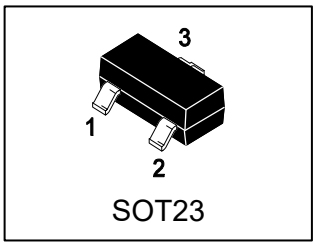
N2306L
S-N2306L

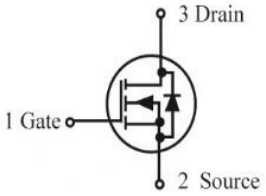
30V N-Channel Enhancement-Mode MOSFET

1. FEATURES



SOT23

- VDS= 30V
- RDS(ON), VGS@10V, IDS@5.8A ≤ 38mΩ
- RDS(ON), VGS@4.5V, IDS@5.0A ≤ 43mΩ
- RDS(ON), VGS@2.5V, IDS@4.0A ≤ 62mΩ
- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.



2. APPLICATIONS

- Advanced trench process technology
- High density cell design for ultra low on-resistance

3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
N2306L	N06	3000/Tape&Reel

4. MAXIMUM RATINGS(Ta = 25ºC)

Parameter	Symbol	Limits	Unit
Drain–Source Voltage	VDSS	30	V
Gate–to–Source Voltage – Continuous	VGS	±12	V
Drain Current – Continuous TA = 25°C – Pulsed(Note 1)	 ID IDM	 5.8 30	A

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Maximum Power Dissipation	PD	1.4	W
Thermal Resistance, Junction–to–Ambient(Note 2) Junction–to–Case	 RΘJA RΘJC	 140 105	 ºC/W ºC/W
Junction and Storage temperature	TJ,Tstg	−55~+150	° C

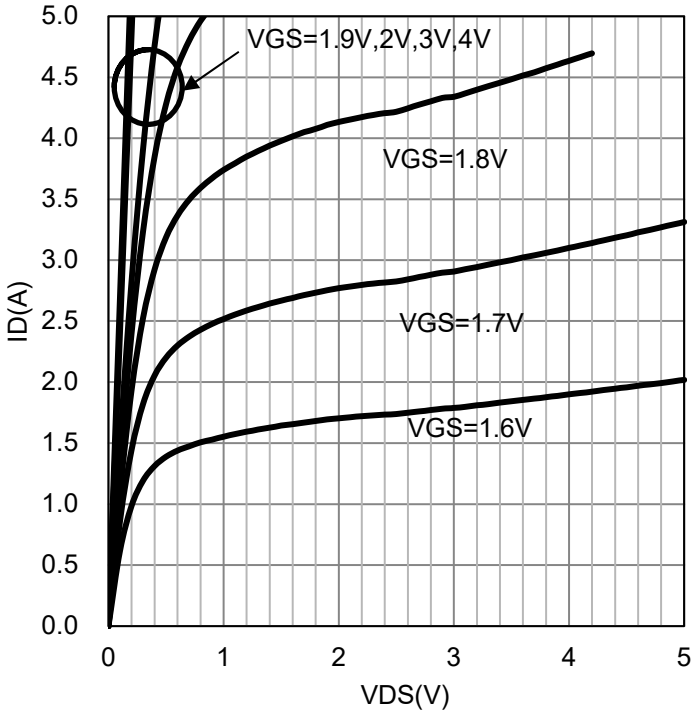
1. Repetitive Rating: Pulse width limited by the Maximum junction temperation.
2. 1-in² 2oz Cu PCB board.

6. ELECTRICAL CHARACTERISTICS (Ta= 25℃)

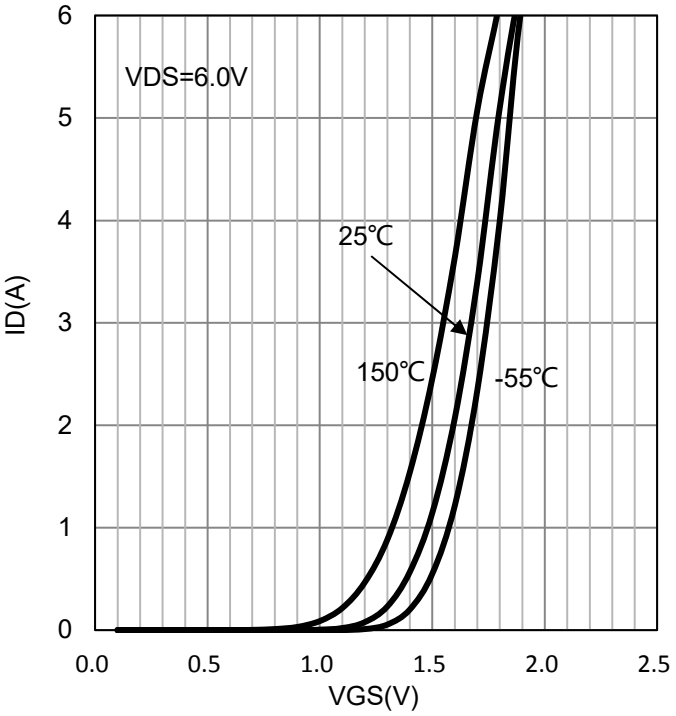
Characteristic		Symbol	Min.	Typ.	Max.	Unit
STATIC						
Drain–Source Breakdown Voltage (VGS = 0, ID = 250μA)		VBRDSS	30	-	-	V
Gate-Source Threshold Voltage (VDS =VGS , ID =250μA)		VGS(th)	0.7	-	1.4	V
Gate-Body Leakage Current (VDS =0V, VGS =± 8V)		IGSS	-	-	±100	nA
Zero Gate Voltage Drain Current (VDS = 24 V, VGS = 0 V)		IDSS	-	-	1	μA
Drain-Source On-Resistance(Note 3) (VGS = 10 V, ID = 5.8 A) (VGS = 4.5 V, ID = 5 A) (VGS = 2.5 V, ID = 4 A)		RDS(ON)	 - - -	 31 34 45	 38 43 62	mΩ
Diode Forward Voltage(Note 3) (IS = 1 A, VGS = 0 V)		VSD	-	-	1.2	V
DYNAMIC						
Turn-On Delay Time	(VDD = 15 V, RL = 15 Ω,ID = 1 A,VGEN = 10 V , RG = 3.1 Ω)	td(on)	-	3.3	-	ns
Rise Time		tr	-	1.3	-	
Turn-Off Delay Time		td(off)	-	17.2	-	
Fall Time		tf	-	1.6	-	
Input Capacitance	(VDS = 15 V, VGS = 0 V, f = 1 MHz)	Ciss	-	602	-	pF
Output Capacitance		Coss	-	45.3	-	
Reverse Transfer Capacitance		Crss	-	34.5	-	

3.Pulse test; pulse width≤300μs, duty cycle≤ 2%

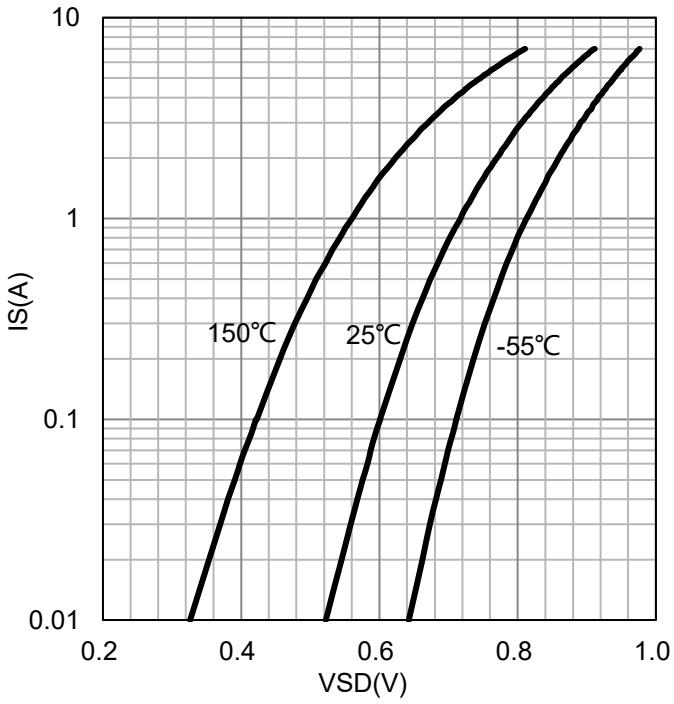
7. ELECTRICAL CHARACTERISTICS CURVES



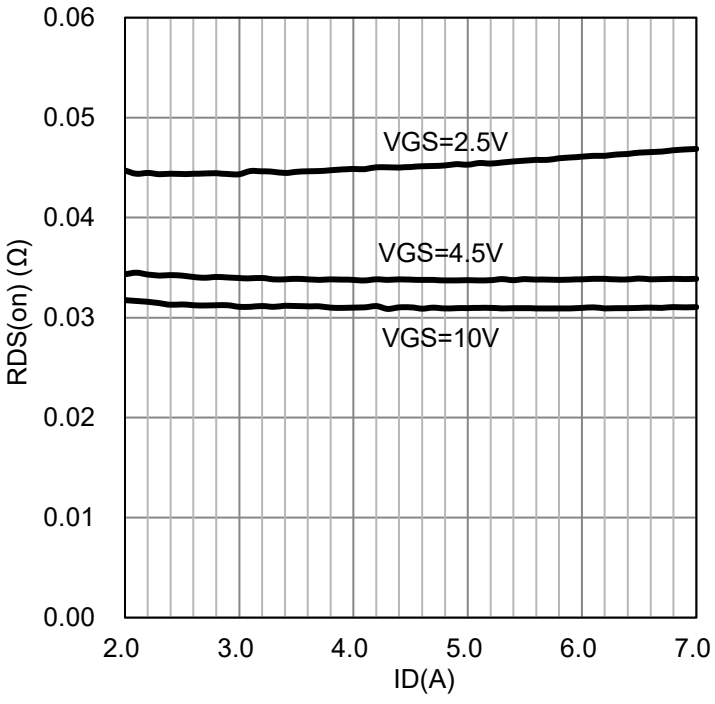
ID vs. VDS



ID vs. VGS

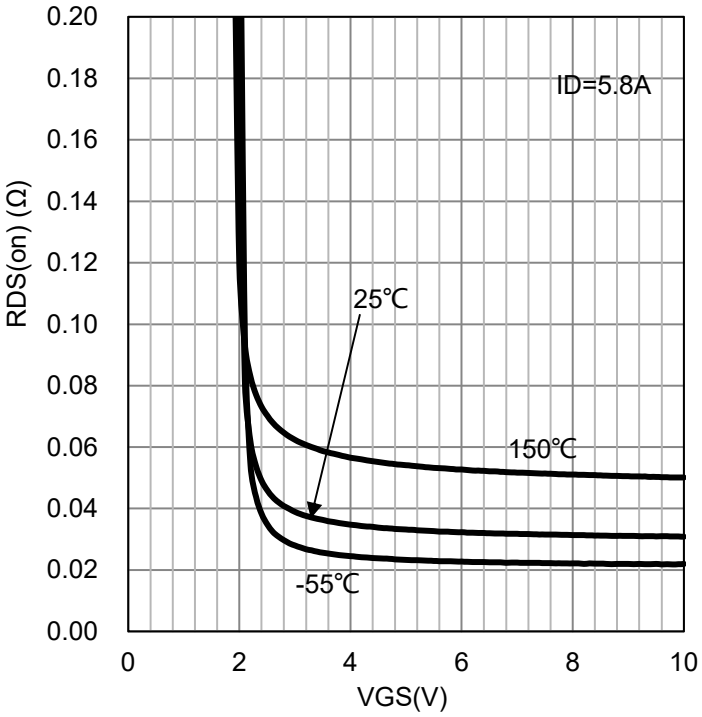


IS vs. VSD

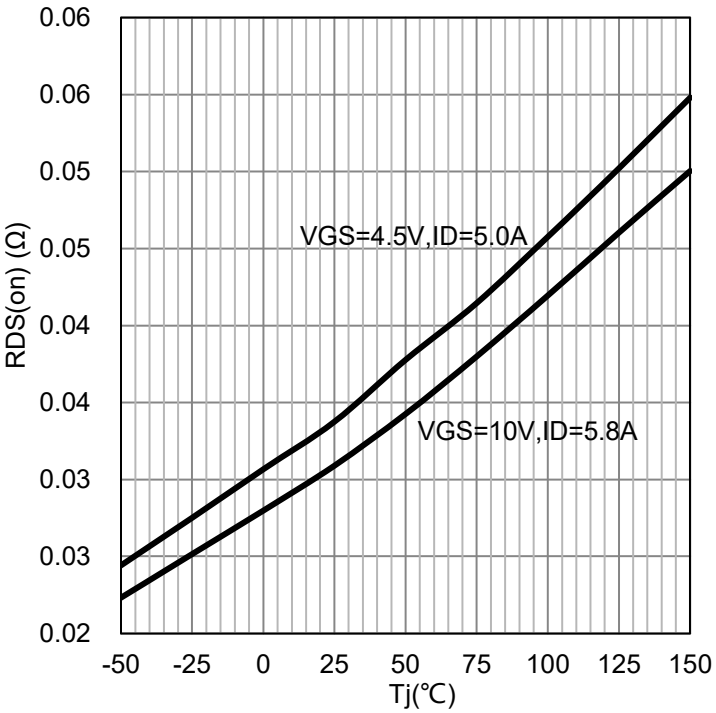


RDS(on) vs. ID

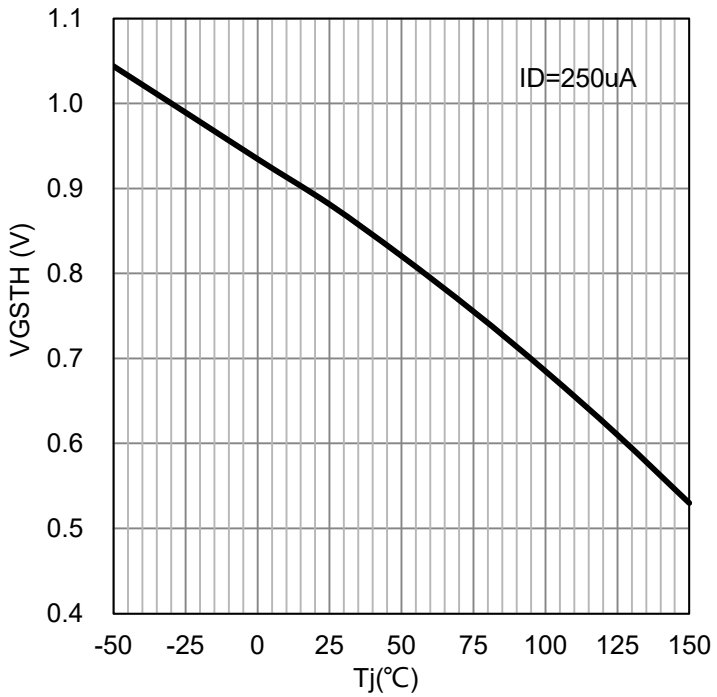
7. ELECTRICAL CHARACTERISTICS CURVES（Con.）



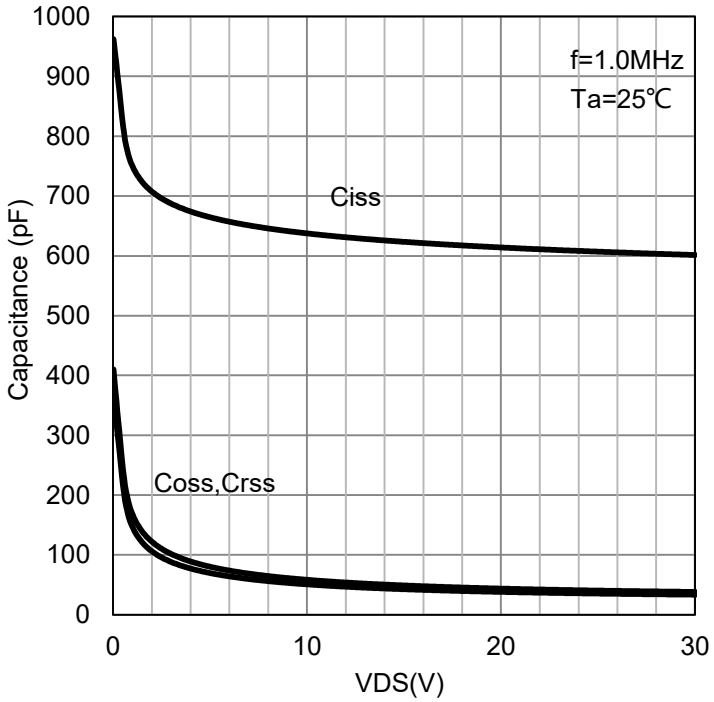
RDS(on) vs. VGS



RDS(on) vs. Tj

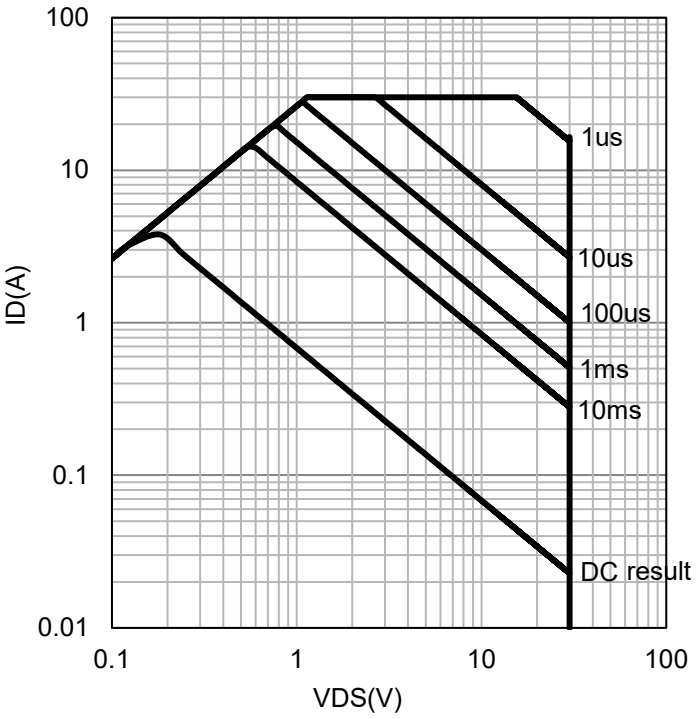


VGSTH vs. Tj

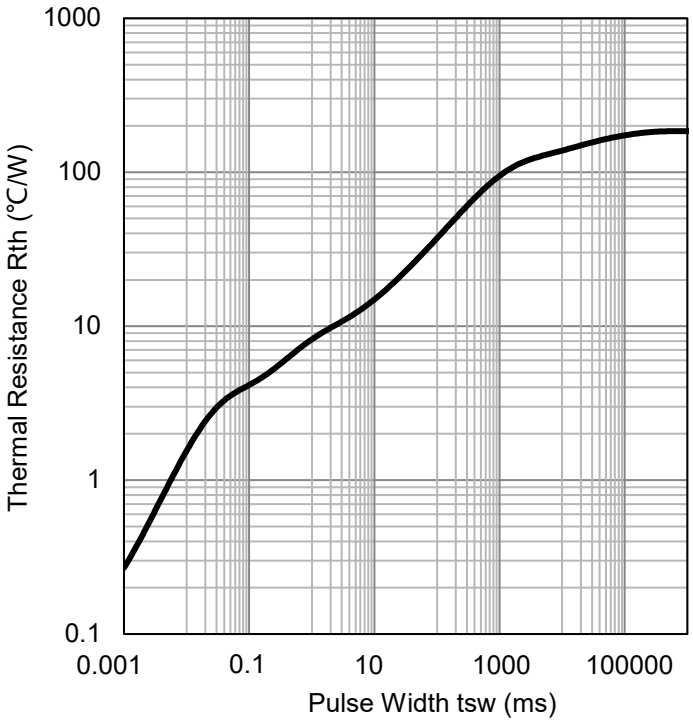


Capacitance

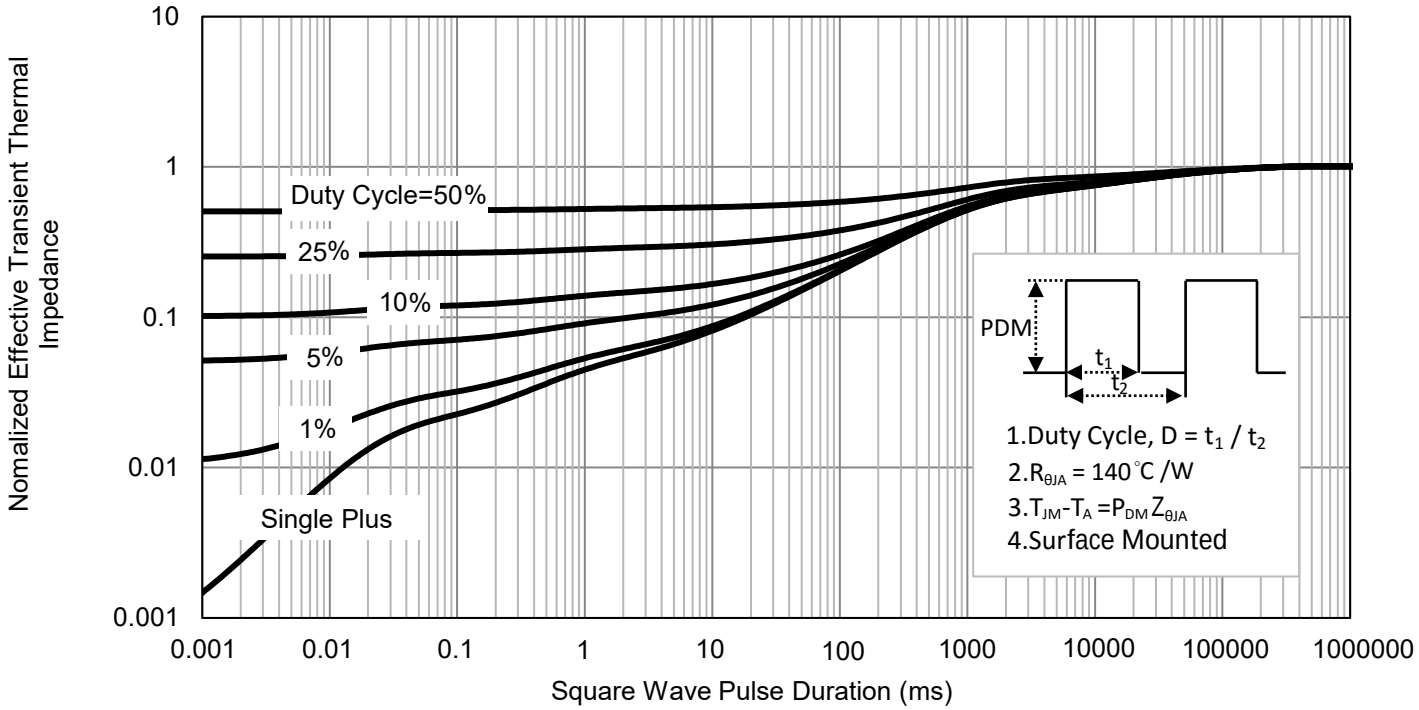
7. ELECTRICAL CHARACTERISTICS CURVES（Con.）



Safe Operating Area

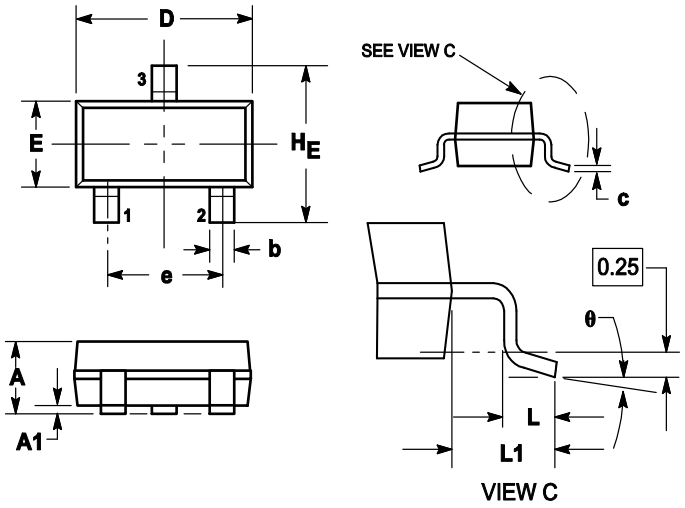


Pulse Width vs. Thermal Resistance



Normalized Maximum Transient Thermal Impedance

8.OUTLINE AND DIMENSIONS



Notes:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1	1.11	0.035	0.04	0.044
A1	0.01	0.06	0.1	0.001	0.002	0.004
b	0.37	0.44	0.5	0.015	0.018	0.02
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.9	3.04	0.11	0.114	0.12
E	1.20	1.3	1.4	0.047	0.051	0.055
e	1.78	1.9	2.04	0.07	0.075	0.081
L	0.10	0.2	0.3	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
H_E	2.10	2.4	2.64	0.083	0.094	0.104
θ	0°	---	10°	0°	---	10°

9.SOLDERING FOOTPRINT