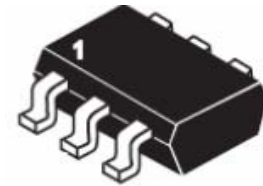
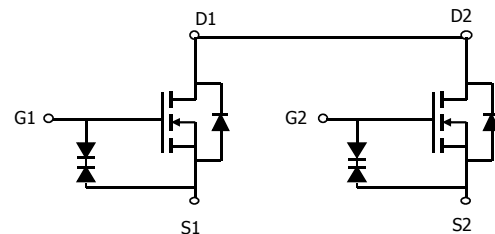
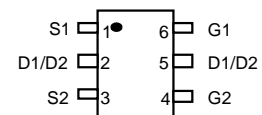


Dual N-Channl Enhancement Mode MOSFET

- 20V/5A
- $R_{DS(ON)}=16m\Omega$ (typ) @VGS=10V
 $R_{DS(ON)}=20m\Omega$ (typ) @VGS=4.5V
- 100% UIS & RG Tested
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)


SOT23-6L top view
Top View


Applic

- Power Management for Industrial Converters

Absolute Maximum Ratings (T_A= 25°C unless otherwise noted)

Symbol	Parameter	Rating	Unit
Common Ratings			
V _{DSS}	Drain-Source Voltage	20	V
V _{GSS}	Gate-Source Voltage	±12	
I _D	Continuous Drain Current	5	A
I _{DM} ¹	Pulsed Drain Current	25	A
I _S ²	Diode Continuous Forward Current	5	A
T _{STG} , T _j	Storage Temperature Range	-55 to 150	°C
P _D	Power Dissipation	1.25	W
R _{θJA} ²	Thermal Resistance-Junction to Ambient	100	°C/w

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_{DS}=250\mu A$	20	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=16V, V_{GS}=0V$	-	-	1	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	0.5	-	1	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0V$	-	-	± 100	nA
$R_{DS(ON)}$	Drain-Source On-state Resistance	$V_{GS}=4.5V, I_{DS}=6A$	-	16	25	m Ω
		$V_{GS}=2.5V, I_{DS}=5A$	-	20	35	
g_{FS}	Forward Transconductance	$V_{DS}=5V, I_D=5A$		10		S
Body Diode Characteristics						
V_{SD}^3	Diode Forward Voltage	$I_{SD}=1A, V_{GS}=0V$	0.5	-	1.3	V
Dynamic Characteristics ⁴						
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=10V,$ Frequency=1.0MHz	-	550	-	pF
C_{oss}	Output Capacitance		-	125	-	
C_{rss}	Reverse transfer capacitance		-	64	-	
$t_{d(ON)}$	Turn-on delay Time	$V_{GS}=4.5V, V_{DS}=10V$ $R_G=10\Omega, I_D=6A$	-	9	-	nS
t_r	Turn-on rise Time		-	10	-	
$t_{d(OFF)}$	Turn-off delay Time		-	32	-	
t_f	Turn-off rise Time		-	24	-	
Gate Charge Characteristics						
Q_g	Total Gate Charge	$V_{DS}=10V, V_{GS}=4.5V, I_{DS}=6A$	-	9.5	-	nC
Q_{gs}	Gate-Source Charge		-	2.1	-	
Q_{gd}	Gate-Drain Charge		-	1.4	-	

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production

Typical Electrical and Thermal Characteristics

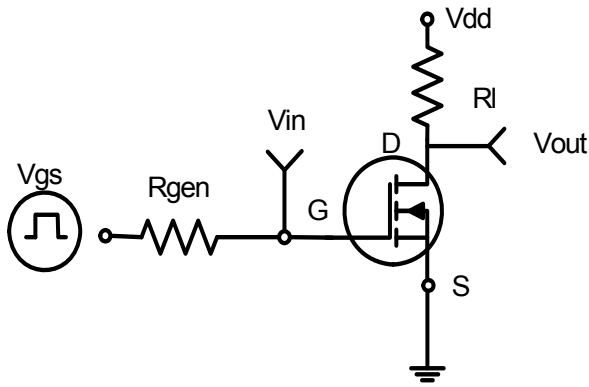


Figure 1: Switching Test Circuit

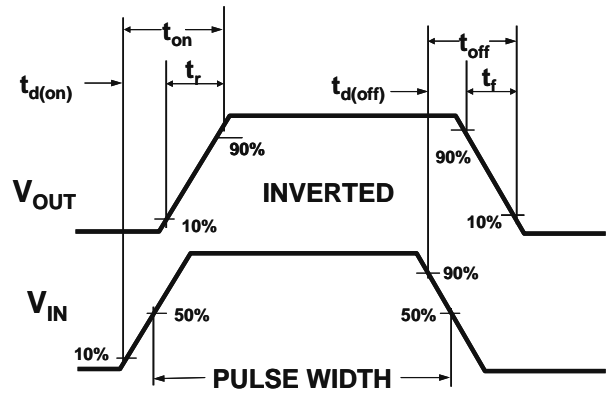


Figure 2: Switching Waveforms

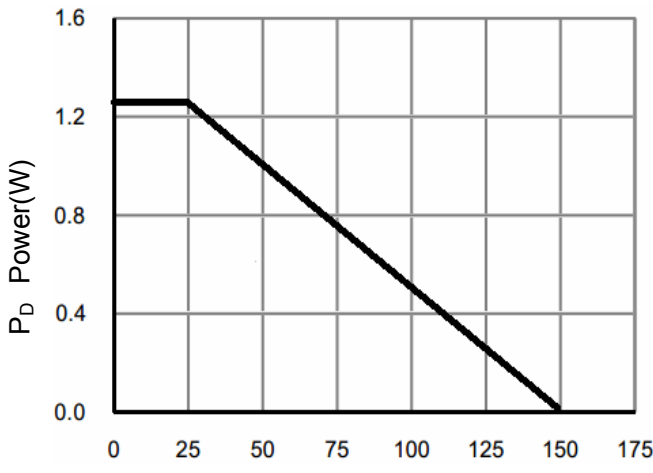


Figure 3 Power Dissipation

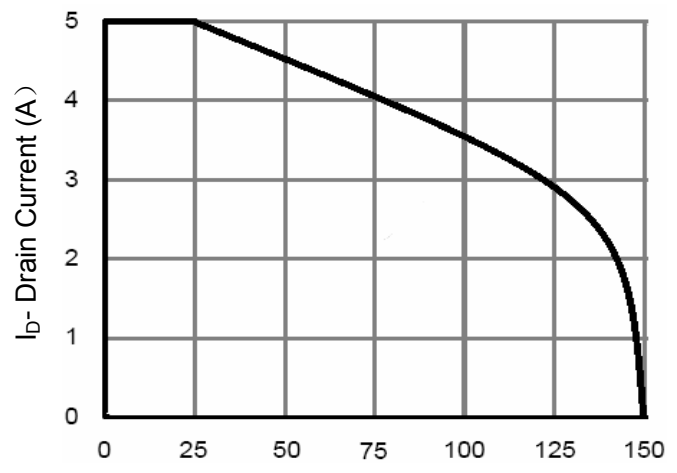


Figure 4 Drain Current

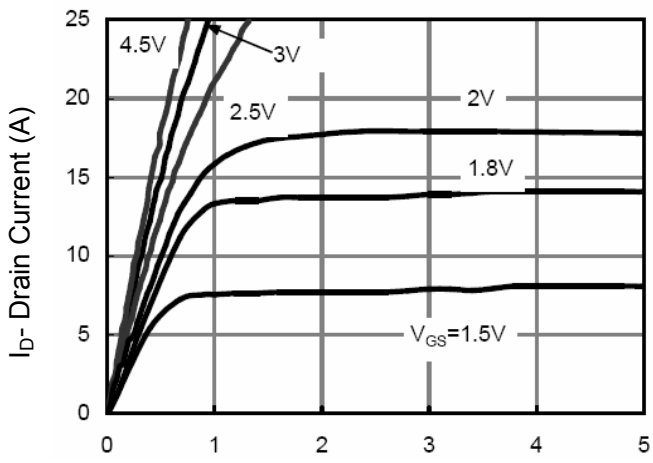


Figure 5 Output Characteristics

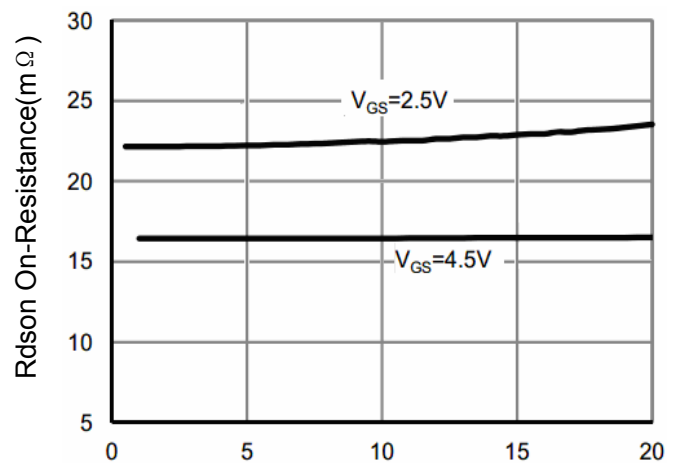


Figure 6 Drain-Source On-Resistance

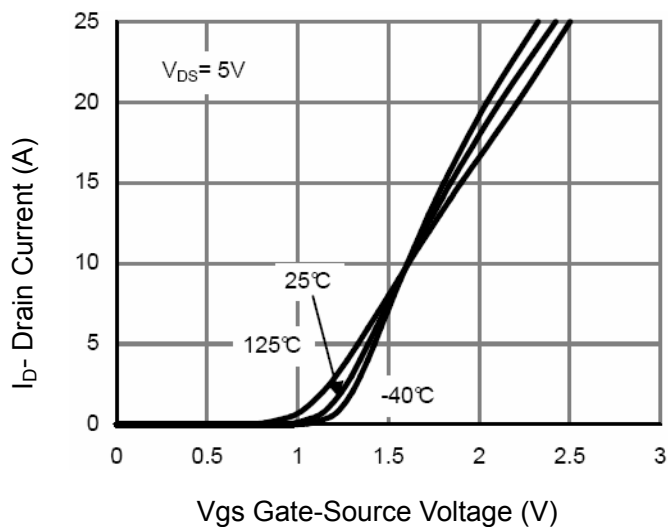


Figure 7 Transfer Characteristics

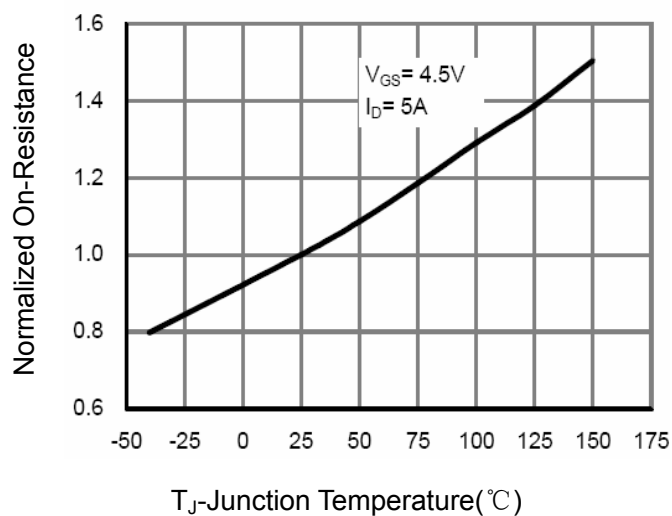


Figure 8 Drain-Source On-Resistance

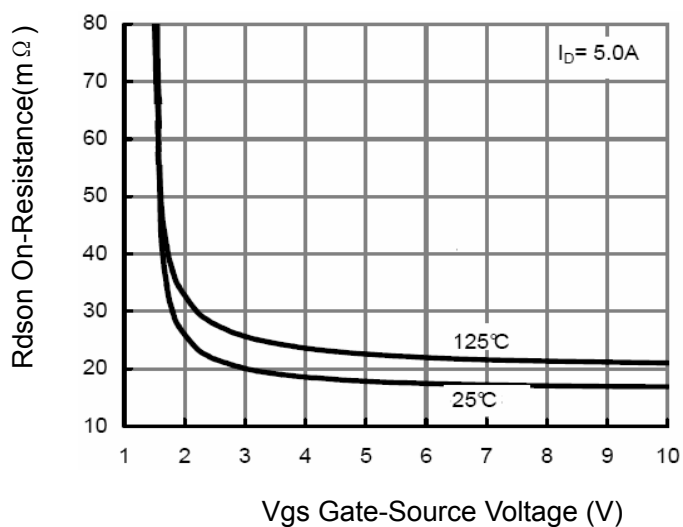


Figure 9 Rdson vs Vgs

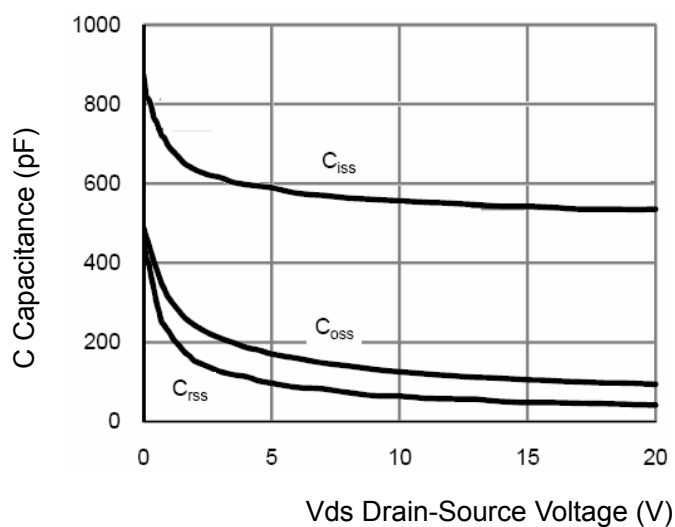


Figure 10 Capacitance vs Vds

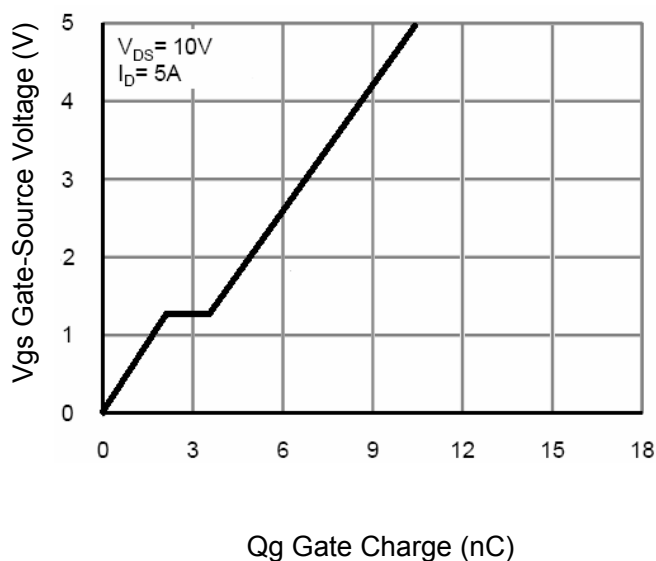


Figure 11 Gate Charge

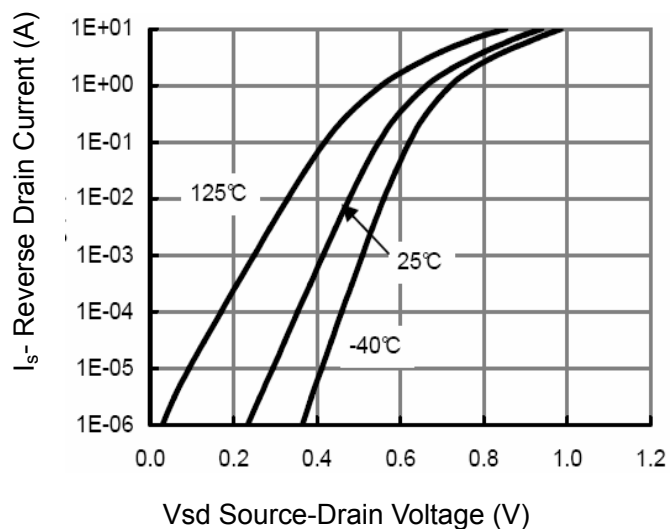


Figure 12 Source- Drain Diode Forward

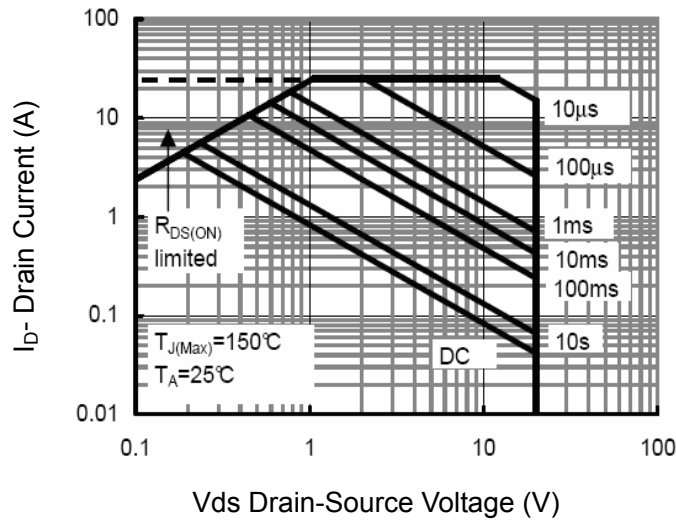


Figure 13 Safe Operation Area

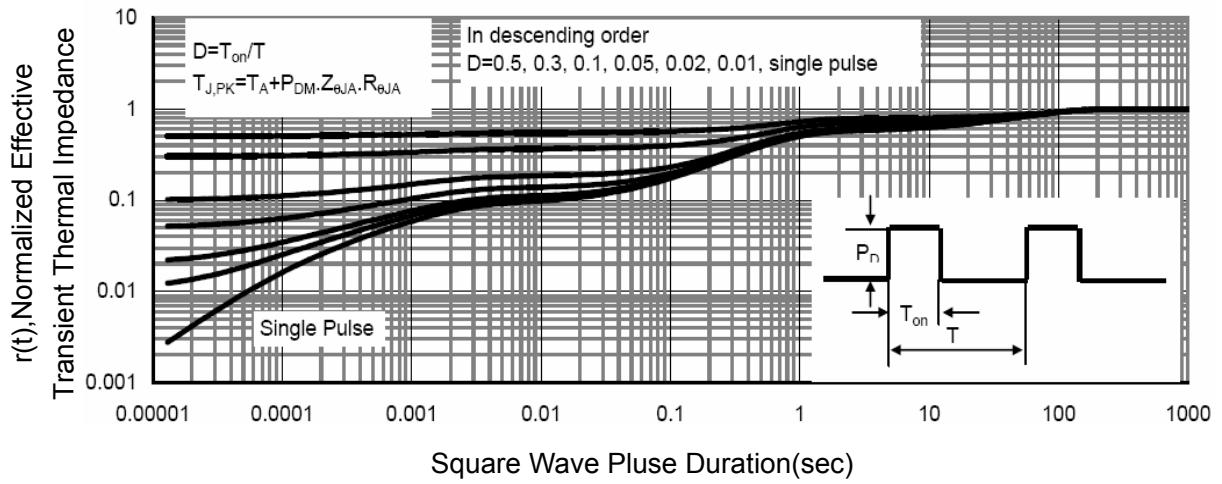
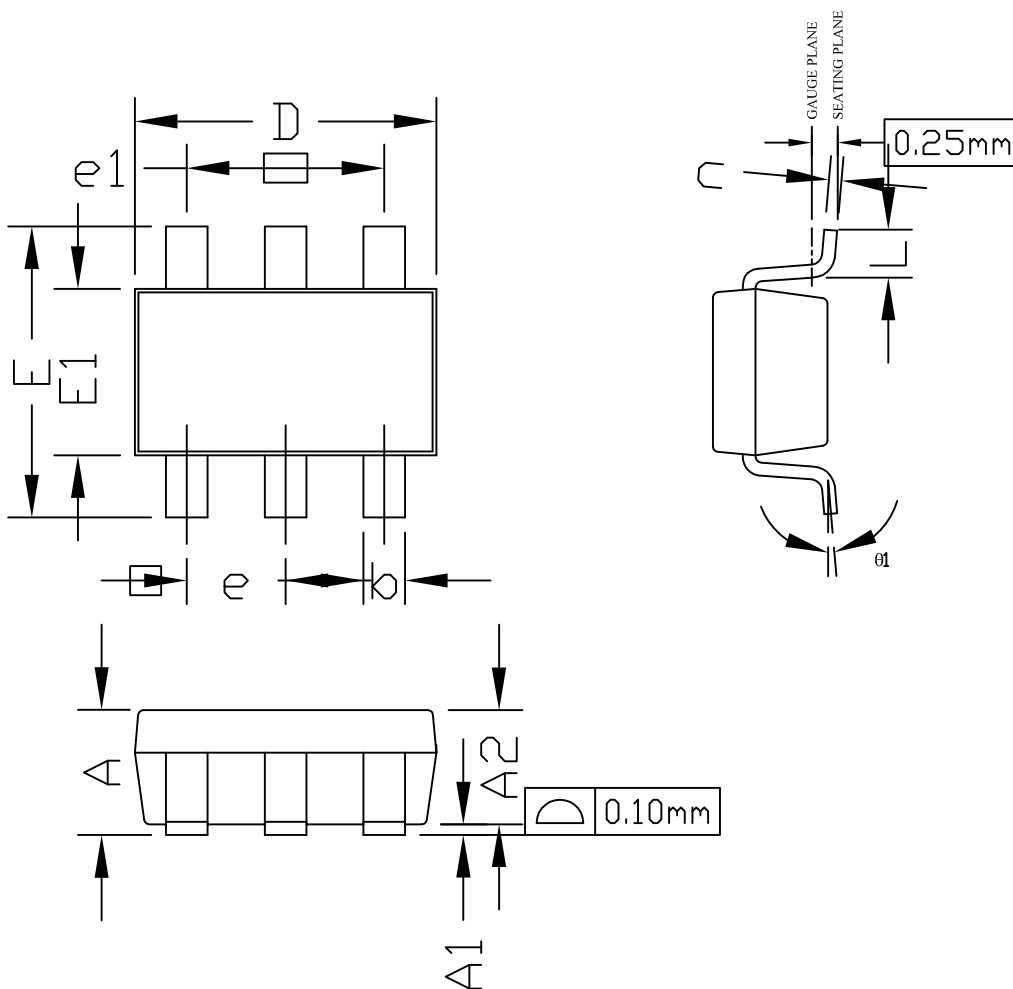
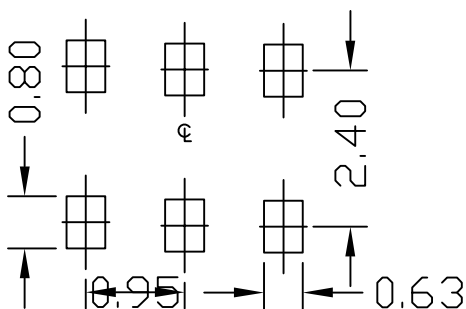


Figure 14 Normalized Maximum Transient Thermal Impedance

SOT23-6L PACKAGE OUTLINE

RECOMMENDED LAND PATTERN


UNIT: mm

SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	—	1.25	0.031	—	0.049
A1	0.00	—	0.15	0.000	—	0.006
A2	0.70	1.10	1.20	0.028	0.043	0.047
b	0.30	0.40	0.50	0.012	0.016	0.020
c	0.08	0.13	0.20	0.003	0.005	0.008
D	2.70	2.90	3.10	0.106	0.114	0.122
E	2.50	2.80	3.10	0.098	0.110	0.122
E1	1.50	1.60	1.70	0.059	0.063	0.067
e	0.95 BSC.			0.037BSC.		
e1	1.90 BSC.			0.075 BSC.		
L	0.30	—	0.60	0.012	—	0.024
θ1	0°	—	8°	0°	—	8°

NOTE

1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
MOLD FLASH AT THE NON-LEAD SIDES SHOULD BE LESS THAN 5 MILS EACH.
2. DIMENSION "L" IS MEASURED IN GAUGE PLANE.
3. TOLERANCE ± 0.100 mm (4 mil) UNLESS OTHERWISE SPECIFIED.
4. FOLLOWED FROM JEDEC MO-178C & MO-193C.
5. CONTROLLING DIMENSIONS IS MILLIMETER.
CONVERTED INCH DIMENSIONS ARE NOT NECESSARILY EXACT.