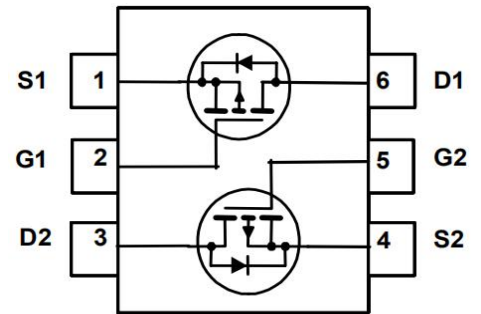




## Dual P-Channel Enhancement Mode Power MOSFET

### Description

The MXN2283 uses advanced trench technology and design to provide excellent RDS(ON) low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a load switch or in PWM applications.

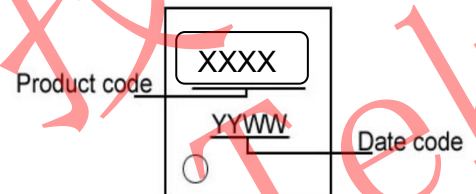


### General Features

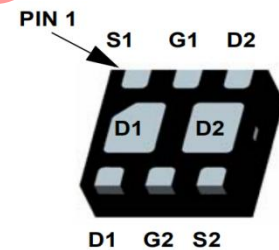
- ◆  $V_{DS} = -20V$ ,  $I_D = 3.2A$
- ◆  $R_{DS(ON)} = 68\ m\ \Omega$  @  $V_{GS} = -4.5V$
- ◆  $R_{DS(ON)} = 95\ m\ \Omega$  @  $V_{GS} = -2.5V$
- ◆  $R_{DS(ON)} = 140m\Omega$  @  $V_{GS} = -1.8V$

High Power and current handling capability  
Lead free product is acquired  
Surface Mount Package

### Schematic diagram



### Marking and pin Assignment



PDFN2x2-6L

### Application

PWM applications  
Load switch  
Power management

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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	$V_{DS}$	-20	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Drain Current-Continuous	$I_D$	-3.2	A
Pulsed Drain Current	$I_{DM}$	-10	A
Maximum Power Dissipation	$P_D$	1	W
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 To 150	°C



**Electrical Characteristics** (TA=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Drain-source breakdown voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20	-	-	V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS}=-20V, V_{GS}=0V$	-	-	1	$\mu A$
Gate-body leakage	$I_{GSS}$	$V_{GS}=\pm 12V, V_{DS}=0V$	-	-	$\pm 100$	$\mu A$
<b>ON Characteristics</b>						
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.45	-0.7	-1	V
Drain-source on-state resistance	$R_{DS(ON)}$	$V_{GS}=-4.5V, I_D=-2.8A$	-	68	95	$m\Omega$
		$V_{GS}=-2.5V, I_D=-2.2A$	-	95	120	$m\Omega$
		$V_{GS}=-1.8V, I_D=-1.7A$	-	140	170	$m\Omega$
<b>Dynamic Characteristics</b>						
Input capacitance	$C_{ISS}$	$V_{DS}=-10V, V_{GS}=0V$ $f=1.0MHz$	-	405	-	pF
Output capacitance	$C_{OSS}$		-	75	-	
Reverse transfer capacitance	$C_{RSS}$		-	55	-	
<b>Switching Characteristics</b>						
Turn-on delay time	$t_{D(ON)}$	$V_{DD}=10V,$ $I_D=-1A$ $V_{GS}=4.5V,$ $R_{GEN}=10\Omega$	-	11	-	ns
Rise time	$t_r$		-	35	-	
Turn-off delay time	$t_{D(OFF)}$		-	30	-	
Fall time	$t_f$		-	10	-	
Total gate charge	$Q_g$	$V_{DS}=-10V, I_D=-3A, V_{GS}=-2.5V$	-	3.3	12	nC
Gate-source charge	$Q_{gs}$		-	0.7	-	
Gate-drain charge	$Q_{gd}$		-	1.3	-	
<b>DRAIN-SOURCE DIODE CHARACTERISTICS</b>						
Diode Forward Voltage (Note 3)	$V_{SD}$	$V_{GS}=0V, I_s=1.3A$	-	-	-1.2	V
Diode Forward Current (Note 2)	$I_s$		-	-	1.3	A

**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

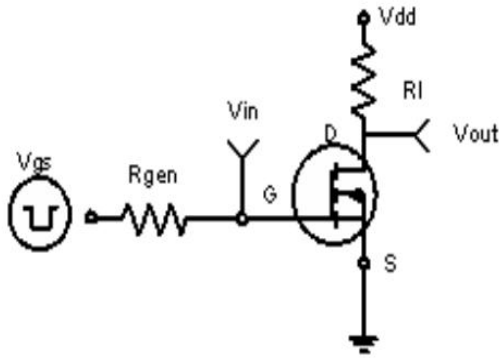


Figure 1: Switching Test Circuit

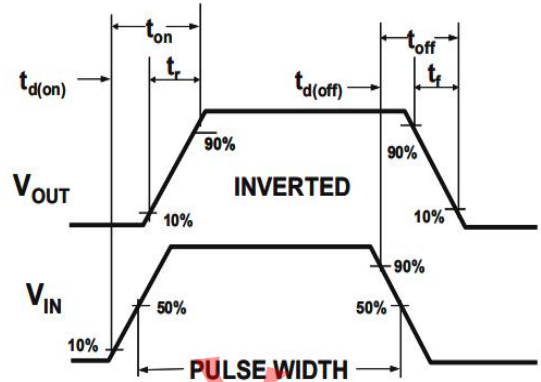


Figure 2: Switching Waveforms

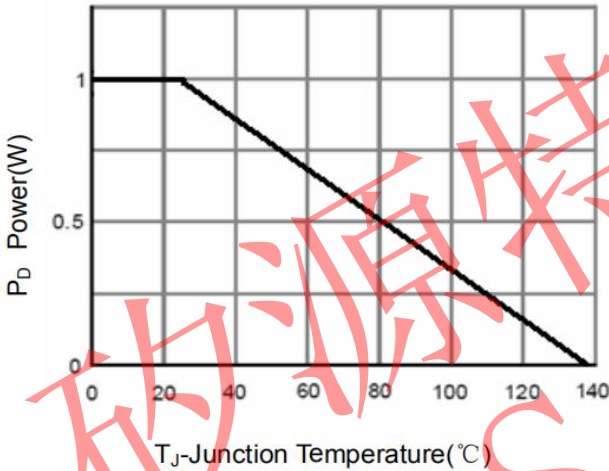


Figure 3 Power Dissipation

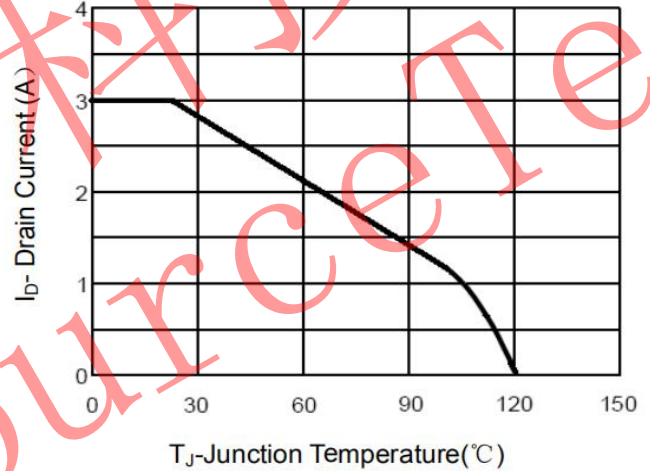


Figure 4 Drain Current

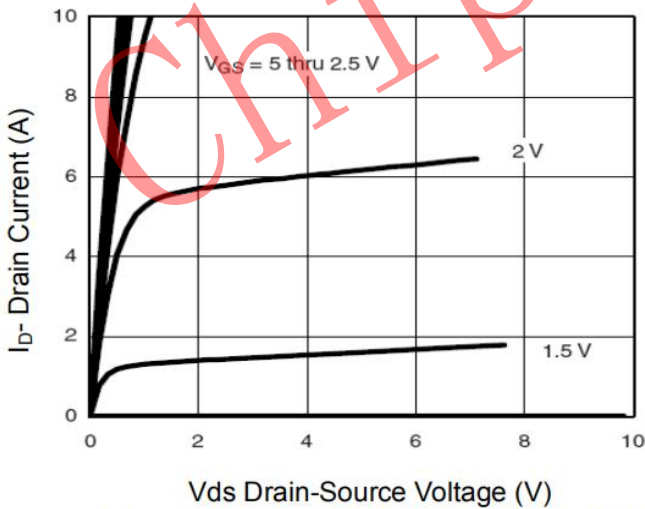


Figure 5 Output CHARACTERISTICS

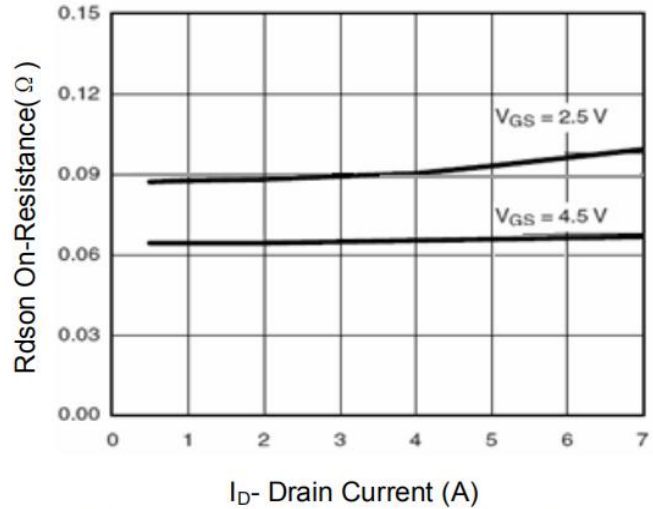
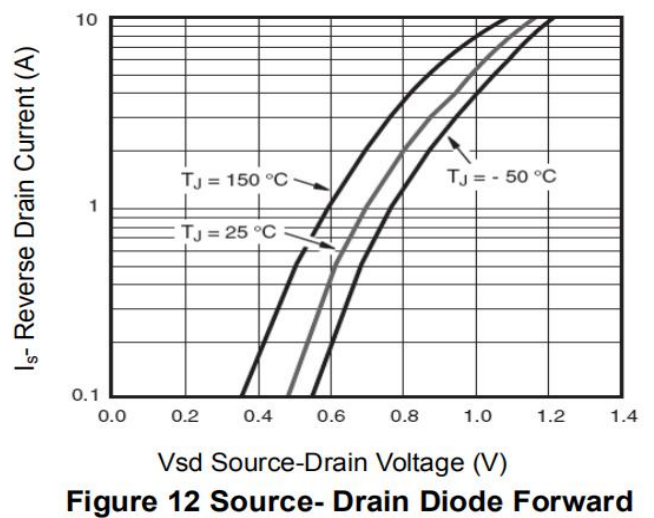
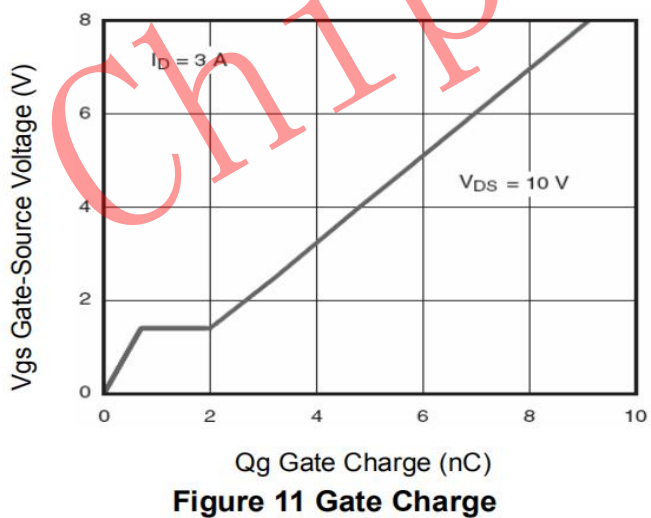
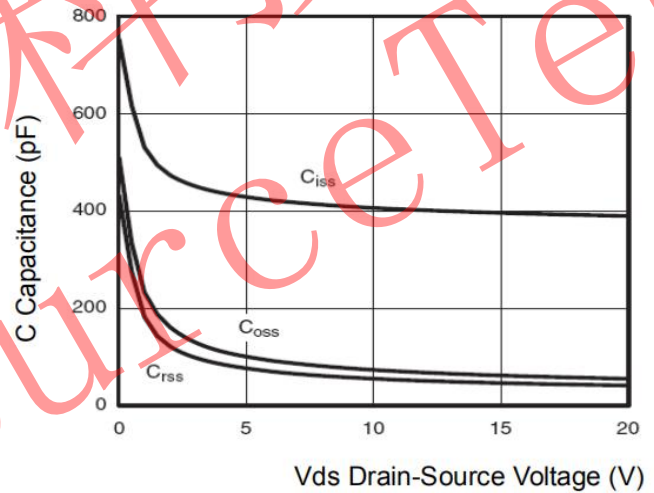
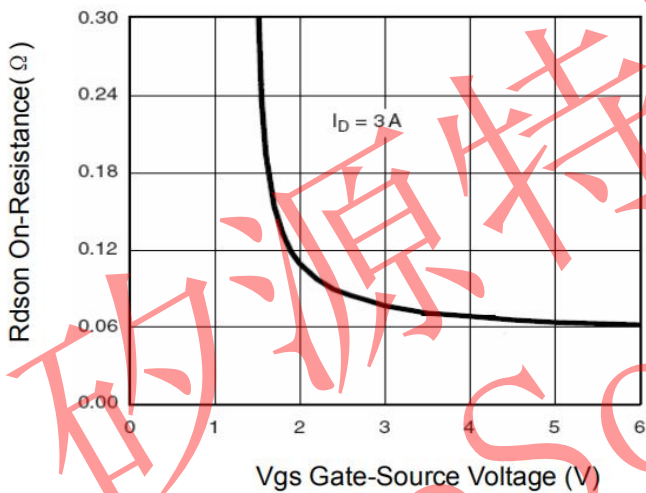
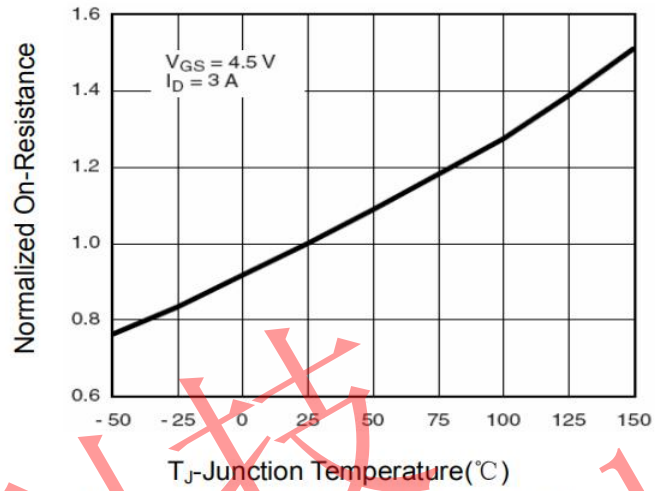
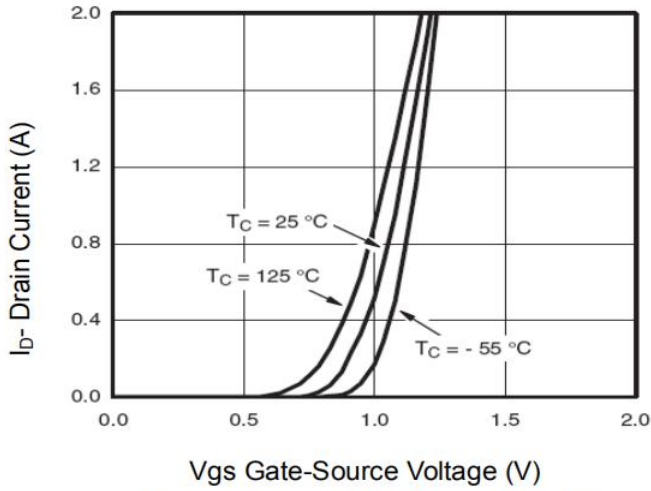


Figure 6 Drain-Source On-Resistance



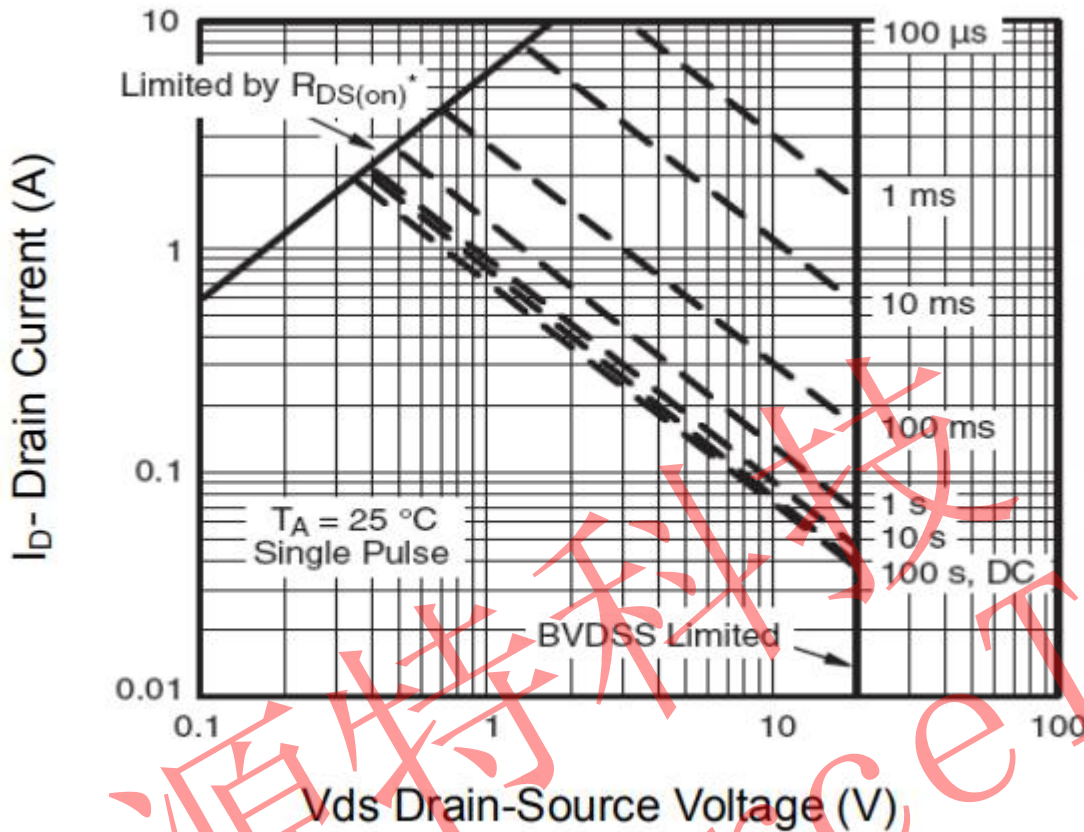


Figure 13 Safe Operation Area

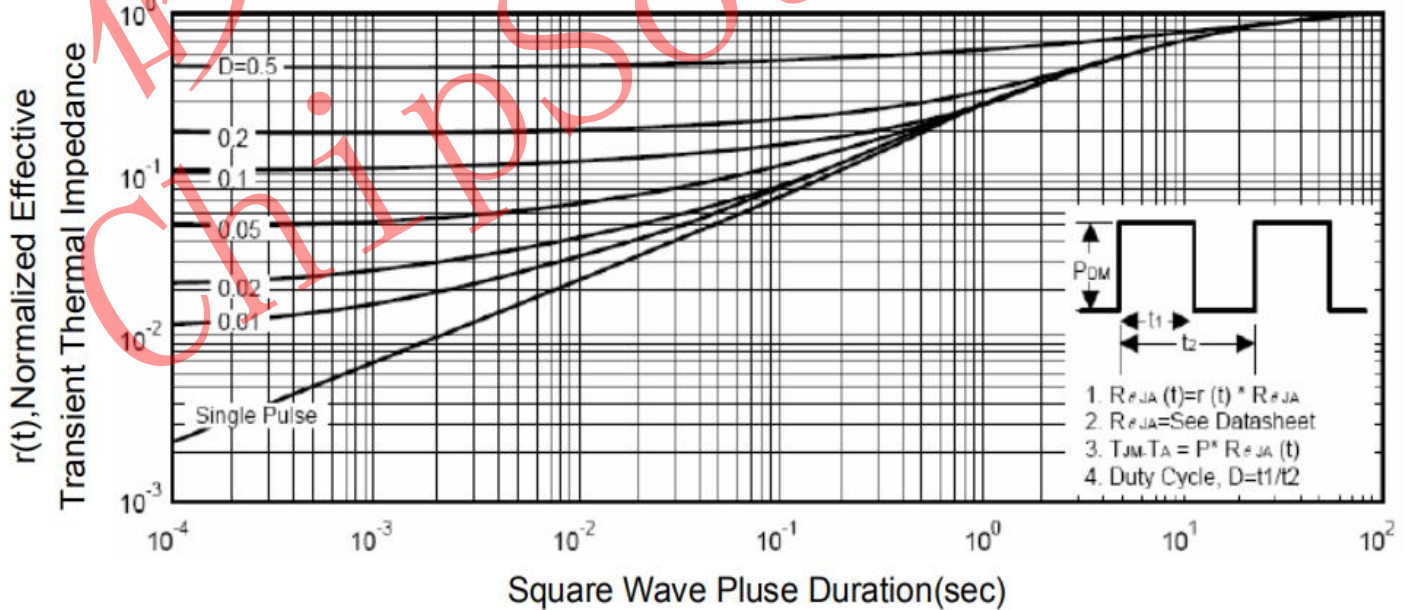
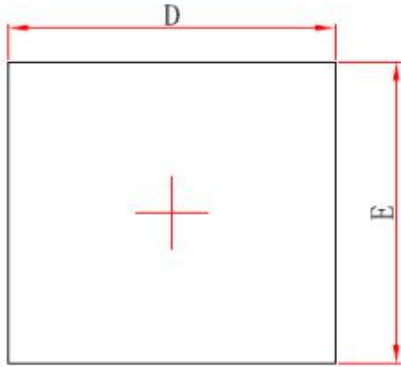


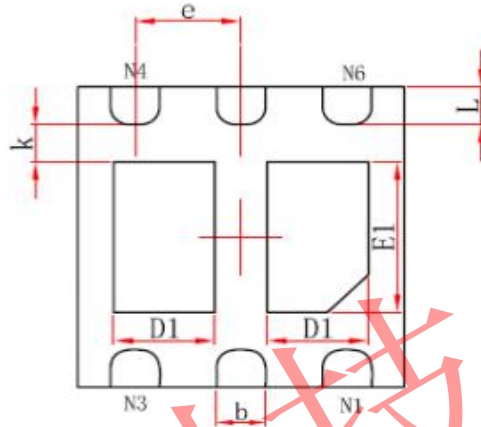
Figure 14 Normalized Maximum Transient Thermal Impedance



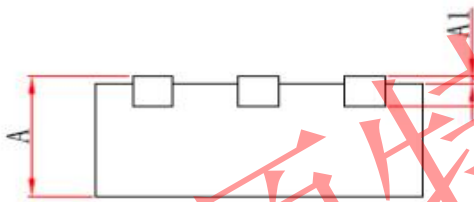
DFNWB2×2-6L-A (P0. 65T0. 75/0. 85) PACKAGE OUTLINE DIMENSIONS



**Top View**



**Bottom View**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700/0.800	0.800/0.900	0.028/0.031	0.031/0.035
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.924	2.076	0.076	0.082
E	1.924	2.076	0.076	0.082
D1	0.520	0.720	0.020	0.028
E1	0.900	1.100	0.035	0.043
k	0.200MIN.		0.008MIN.	
b	0.250	0.350	0.010	0.014
e	0.650TYP.		0.026TYP.	
L	0.174	0.326	0.007	0.013

**NOTES**

1. All dimensions are in millimeters.
2. Tolerance  $\pm 0.10\text{mm}$  (4 mil) unless otherwise specified
3. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 5 mils.
4. Dimension L is measured in gauge plane.
5. Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.