Absolute Maximum Rating (Note 1)

Parameter		Symbol	Limit	Unit
Input Supply Voltage		V_{IN}	12	V
Operation Input Supply Voltage		V_{IN} (Opr. Typ.)	7	V
Power Dissipation (Note 2)		P_D	Internal limited	
Thermal Resistance Junction to Ambient	TO-220	Θ_{JA}	80	°C/W
	TO-263		85	
	TO-252		105	
	SOT-223		130	
Operating Junction Temperature Range		T_J	0 ~ +125	°C
Storage Temperature Range		T_{STG}	-65 ~ +150	°C
Lead Soldering Temperature (260°C)	TO-220 / TO-263		10	S
	TO-252 / SOT-223		5	

Electrical Specification (Ta = 25°C, unless otherwise specified.)

Parameter	Conditions	Min	Typ	Max	Unit
Reference Voltage	V_{IN}= 2.75, Io=1A	1.225	1.25	1.275	V
Output Voltage	V_{IN} = 3.3V~7V, Io=1A	1.470	1.5	1.530	V
	V_{IN} = 4V~7V, Io=1A	1.764	1.8	1.836	V
	V_{IN} = 4.8V~7V, Io=1A	2.450	2.5	2.550	V
	V_{IN} = 6.5V~7V, Io=1A	3.235	3.3	3.366	V
	Vo+1.5V ≤ V_{IN} ≤ 7V, Io= 10mA	4.900	5.0	5.100	V
Line Regulation	V_{IN} = V_{OUT} +1.5V Io= 10mA ~ 1A	--	0.015	0.2	%
Load Regulation (Note 1,2)	Io=1A, Δ V_{OUT} = 1% V_{OUT}	--	0.05	1.0	%
Dropout Voltage	V_{IN} = 5V	--	1.3	1.5	V
Quiescent Current		--	8	10	mA
Adjustable Pin Current	V_{IN} - V_{OUT} = 3V	--	90	--	uA
Output Current Limit	Io=10mA,	1.1	--	--	A
Temperature Stability	F= 120Hz, Io= 1A, C_{OUT} = 25uF, V_{IN} = Vout+3V	--	0.5	--	%
Ripple Rejection	V_{IN}= 2.75, Io=1A	--	60	70	dB

Note 1: See thermal regulation specification for changes in output voltage due to heating effects. Line and load regulation are measured at a constant junction temperature by low duty cycle pulse testing. Load regulation is measured at the output lead = 1/18" from the package.

Note 2: Line and load regulation are guaranteed up to the maximum power dissipation of 15W. Power dissipation is determined by the input / output voltage difference and the output current. Guaranteed maximum power dissipation will not be available over the full input / output voltage range.

Note 3: Quiescent current is defined as the minimum output current required to maintain the regulation.

Electrical Characteristics Curve

FIGURE 1 – Dropout Voltage vs. Output Current

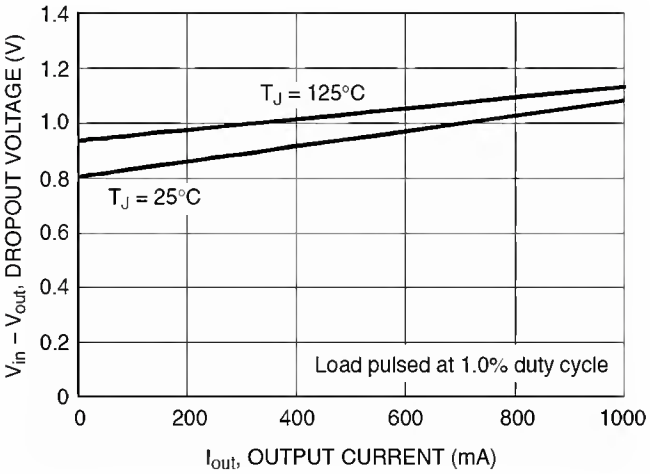


FIGURE 2 – Vout Change vs. Temperature

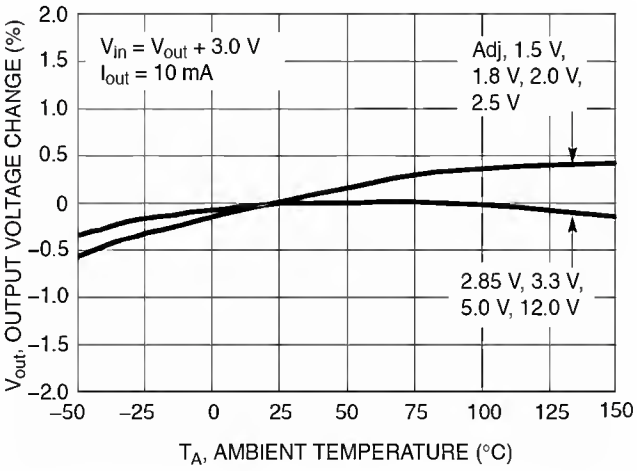


FIGURE 3 – Output Short Circuit Current vs. Differential Voltage

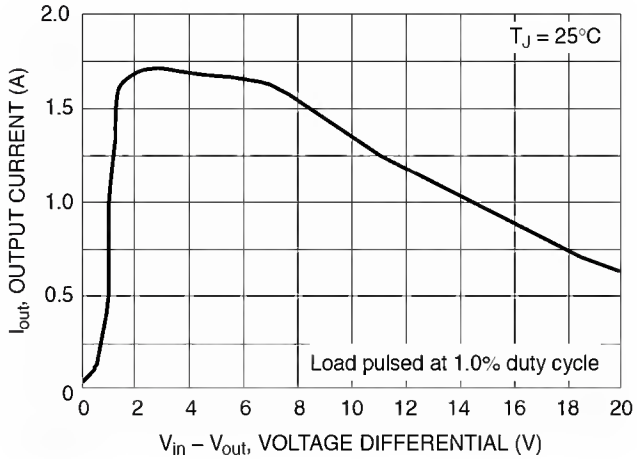


FIGURE 4 – Output Short Circuit Current vs. Temperature

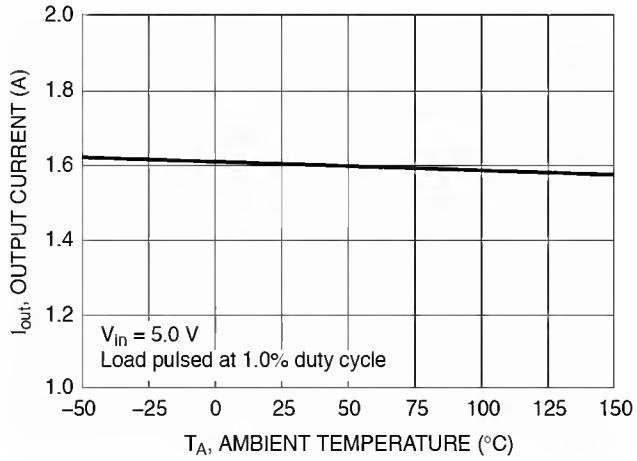


FIGURE 5 – Adjust Pin Current vs. Temperature

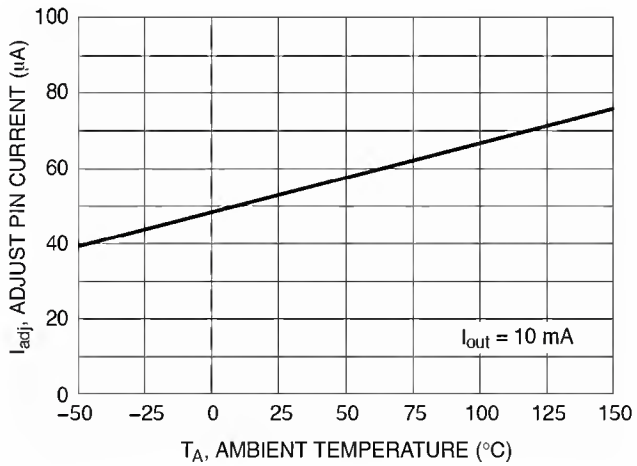
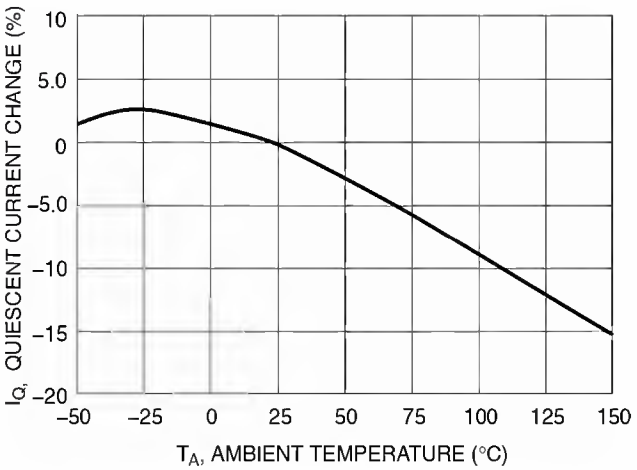


FIGURE 6 – Iq Change vs. Temperature



Application Information

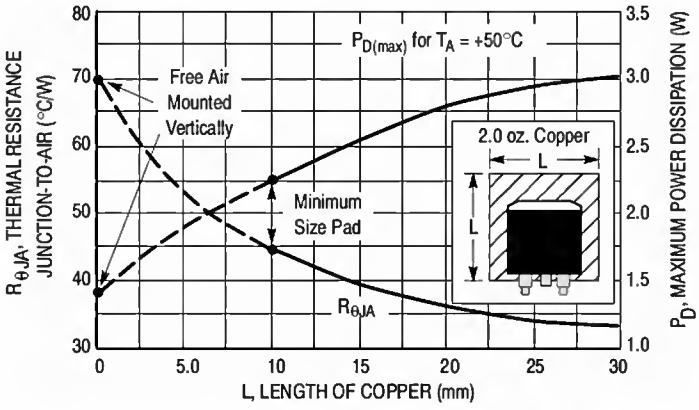


Figure 6 – D²PAK Thermal Resistance and Maximum Power Dissipation vs. P.C.B Copper Length

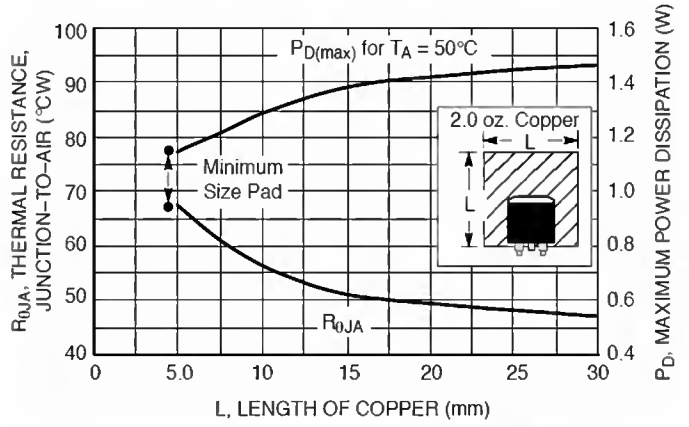


Figure 7 – DPAK Thermal Resistance and Maximum Power Dissipation vs. P.C.B Copper Length

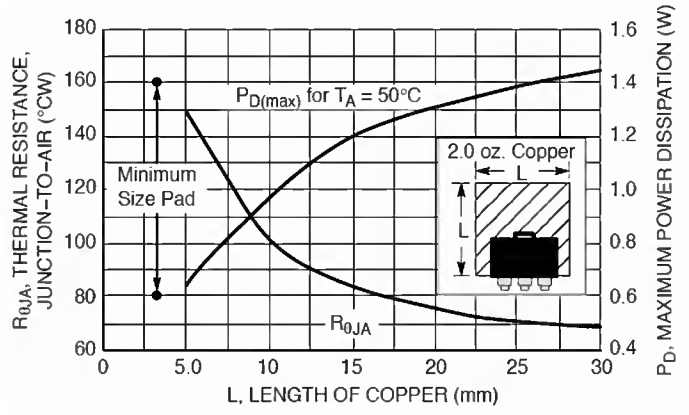
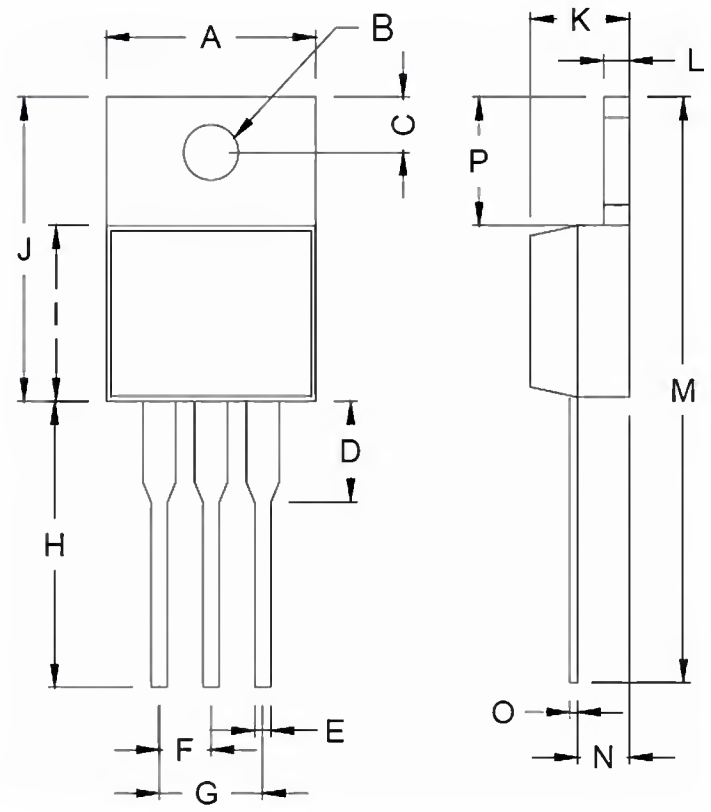


Figure 8 – SOT-223 Thermal Resistance and Maximum Power Dissipation vs. P.C.B Copper Length

TS1117

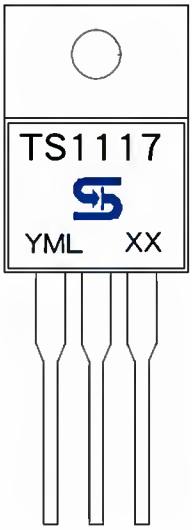
1A Low Dropout Positive Voltage Regulator

TO-220 Mechanical Drawing



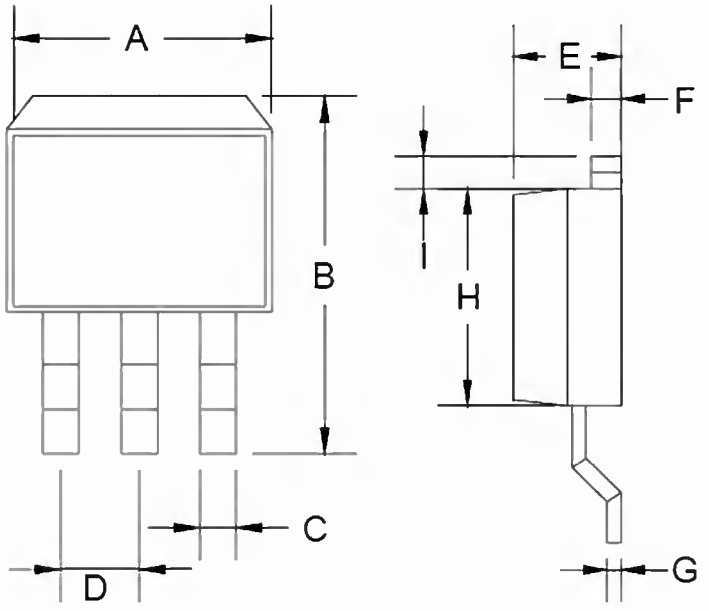
TO-220 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.000	10.500	0.394	0.413
B	3.740	3.910	0.147	0.154
C	2.440	2.940	0.096	0.116
D	-	6.350	-	0.250
E	0.381	1.106	0.015	0.040
F	2.345	2.715	0.092	0.058
G	4.690	5.430	0.092	0.107
H	12.700	14.732	0.500	0.581
I	8.382	9.017	0.330	0.355
J	14.224	16.510	0.560	0.650
K	3.556	4.826	0.140	0.190
L	0.508	1.397	0.020	0.055
M	27.700	29.620	1.060	1.230
N	2.032	2.921	0.080	0.115
O	0.255	0.610	0.010	0.024
P	5.842	6.858	0.230	0.270

Marking Diagram



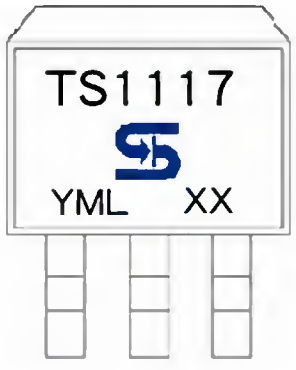
Y = Year Code
M = Month Code
(**A**=Jan, **B**=Feb, **C**=Mar, **D**=Apl, **E**=May, **F**=Jun, **G**=Jul, **H**=Aug, **I**=Sep, **J**=Oct, **K**=Nov, **L**=Dec)
L = Lot Code
XX = Voltage Code
(1.5=1.5V, 1.8=1.8V, 2.5=2.5V, 3.3=3.3V, 5.0=5V)
= Package Code for Adjustable type
(CZ = TO-220)

TO-263 Mechanical Drawing



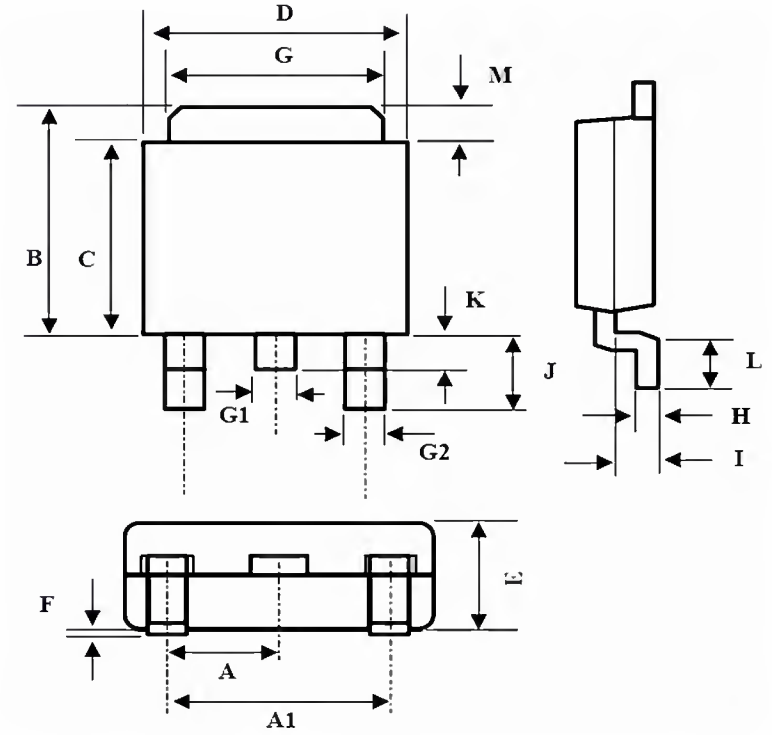
TO-263 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.000	10.500	0.394	0.413
B	14.605	15.875	0.575	0.625
C	0.508	0.991	0.020	0.039
D	2.420	2.660	0.095	0.105
E	4.064	4.830	0.160	0.190
F	1.118	1.400	0.045	0.055
G	0.450	0.730	0.018	0.029
H	8.280	8.800	0.325	0.346
I	1.140	1.400	0.044	0.055
J	1.480	1.520	0.058	0.060

Marking Diagram



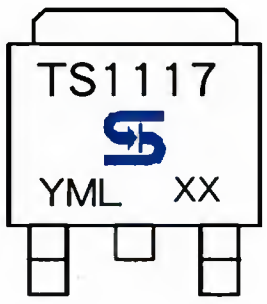
Y = Year Code
M = Month Code
(**A**=Jan, **B**=Feb, **C**=Mar, **D**=Apl, **E**=May, **F**=Jun, **G**=Jul, **H**=Aug, **I**=Sep, **J**=Oct, **K**=Nov, **L**=Dec)
L = Lot Code
XX = Voltage Code
(1.5=1.5V, 1.8=1.8V, 2.5=2.5V, 3.3=3.3V, 5.0=5V)
= Package Code for Adjustable type
(CM = TO-263)

TO-252 Mechanical Drawing



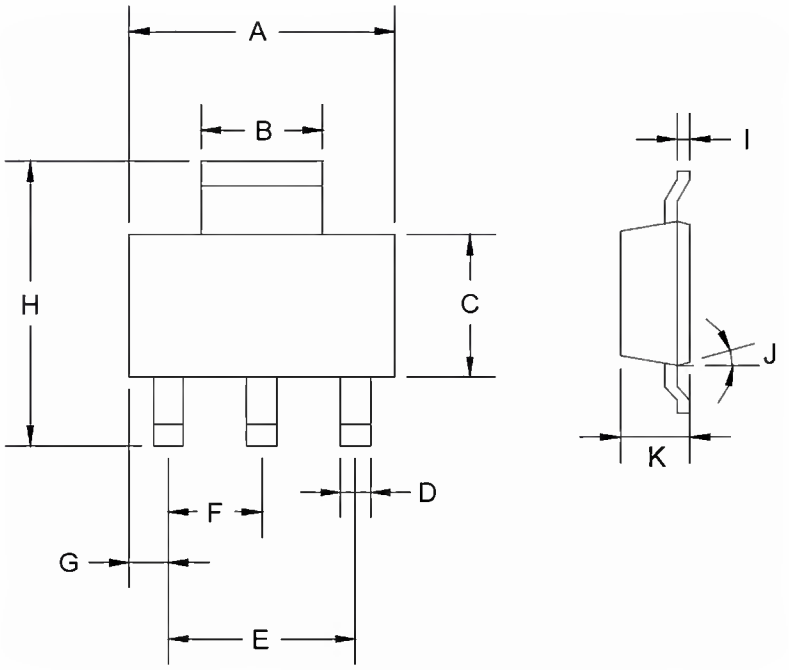
TO-252 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.3BSC		0.09BSC	
A1	4.6BSC		0.18BSC	
B	6.80	7.20	0.268	0.283
C	5.40	5.60	0.213	0.220
D	6.40	6.65	0.252	0.262
E	2.20	2.40	0.087	0.094
F	0.00	0.20	0.000	0.008
G	5.20	5.40	0.205	0.213
G1	0.75	0.85	0.030	0.033
G2	0.55	0.65	0.022	0.026
H	0.35	0.65	0.014	0.026
I	0.90	1.50	0.035	0.059
J	2.20	2.80	0.087	0.110
K	0.50	1.10	0.020	0.043
L	0.90	1.50	0.035	0.059
M	1.30	1.70	0.051	0.67

Marking Diagram



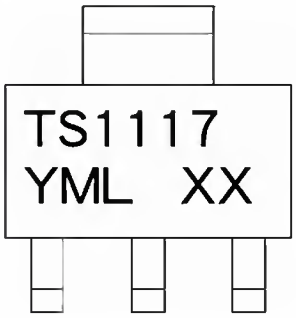
Y = Year Code
M = Month Code
(**A**=Jan, **B**=Feb, **C**=Mar, **D**=Apl, **E**=May, **F**=Jun, **G**=Jul, **H**=Aug, **I**=Sep, **J**=Oct, **K**=Nov, **L**=Dec)
L = Lot Code
XX = Voltage Code
(1.5=1.5V, 1.8=1.8V, 2.5=2.5V, 3.3=3.3V, 5.0=5V)
= Package Code for Adjustable type
(CP = TO-252)

SOT-223 Mechanical Drawing



SOT-223 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.350	6.850	0.250	0.270
B	2.900	3.100	0.114	0.122
C	3.450	3.750	0.136	0.148
D	0.595	0.635	0.023	0.025
E	4.550	4.650	0.179	0.183
F	2.250	2.350	0.088	0.093
G	0.835	1.035	0.032	0.041
H	6.700	7.300	0.263	0.287
I	0.250	0.355	0.010	0.014
J	10°	16°	10°	16°
K	1.550	1.800	0.061	0.071

Marking Diagram



Y = Year Code
M = Month Code
(**A**=Jan, **B**=Feb, **C**=Mar, **D**=Apl, **E**=May, **F**=Jun, **G**=Jul, **H**=Aug, **I**=Sep, **J**=Oct, **K**=Nov, **L**=Dec)
L = Lot Code
XX = Voltage Code
(1.5=1.5V, 1.8=1.8V, 2.5=2.5V, 3.3=3.3V, 5.0=5V)
= Package Code for Adjustable type
(CW = SOT-223)

Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.