Elektronische Bauelemente

SLMJ317C-C

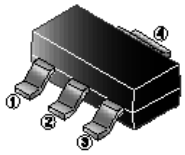
3-Terminal, 1.5A
Plastic-Encapsulate Voltage Regulator

RoHS Compliant Product
A suffix of "-C" specifies halogen and lead-free

DESCRIPTION

The SLMJ317C-C is an adjustable 3-terminal positive voltage regulator, designed to supply more than 1.5A of load current with an output voltage adjustable from 1.25V to 37V. It employs internal current limiting, thermal shut-down, and safe area compensation.

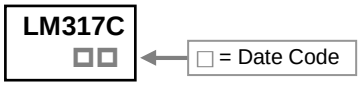
SOT-223



FEATURES

- Output Transistor Safe Operating Area Compensation
- Internal Thermal Overload Protection
- Internal Short Circuit Current Limiting

MARKING

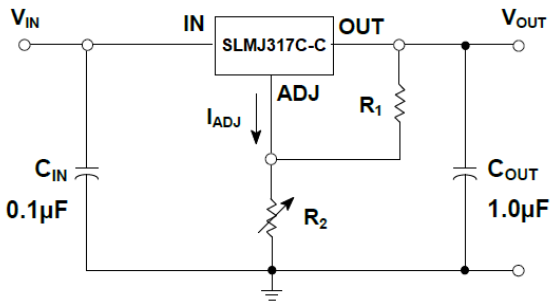


PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-223	2.5K	13 inch

ORDER INFORMATION

Part Number	Type
SLMJ317C-C	Lead (Pb)-free and Halogen-free



Typical Application Circuits

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
Maximum Input-Output Difference Voltage	V_I-V_O	40	V
Programmable Output Voltage Range	V_{OUT}	37	
Output Current Range	I_O	1.5	A
Maximum Power Dissipation	P_D	1	W
Thermal Resistance from Junction-Ambient [1]	$R_{\theta JA}$	100	℃/W
Thermal Resistance from Junction-Case [1]	$R_{\theta JC}$	27	
Storage Temperature @10s	T_{solder}	260	℃
Junction & Storage Temperature Range	T_J, T_{STG}	-40~125, -65~150	℃

Notes:
1. Thermal metric is measured in still air with T_A=25℃ and installed on a 1 in^2 FR-4 board covered with 2 ounces of copper.

ELECTRICAL CHARACTERISTICS

(V_I-V_O=5V, I_O=0.5A, C_{IN}=1μF, C_{OUT}=1μF, unless otherwise specified)

Parameter	Symbol	Test Conditions		Min.	Typ.	Max.	Unit
Line Regulation [1]	LNR	3V≦V_I-V_O≦40V	T_J=25℃	-	0.01	0.04	%/V
			T_J=0~125℃	-	0.02	0.07	
Load Regulation [1]	LDR	V_O<5V 0.01A≦I_O≦1.5A	T_J=25℃	-	5	25	mV
			T_J=0~125℃	-	20	70	
		V_O≧5V 0.01A≦I_O≦1.5A	T_J=25℃	-	0.1	0.5	%·V_O
			T_J=0~125℃	-	0.3	1.5	
ADJUST Terminal Current	I_{ADJ}	T_J=25℃		-	50	100	μA
Change in ADJUST Terminal Current	△I_{ADJ}	2.5V≦V_I-V_O≦40V 0.01A≦I_O≦1.5A	T_J=25℃	-	2	5	μA
Reference Voltage	V_{REF}	3V≦V_I-V_O≦40V 0.01A≦I_O≦1.5A	T_J=25℃	1.2	1.25	1.3	V
Line Regulation of Reference Voltage	LNR V_{REF}	3V≦V_I-V_O≦40V	T_J=25℃	-	0.02	0.07	%/V
Load Regulation of Reference Voltage	LDR V_{REF}	V_O<5V 0.01A≦I_O≦1.5A	T_J=25℃	-	20	70	mV
		V_O≧5V 0.01A≦I_O≦1.5A	T_J=25℃	-	0.3	1.5	%·V_O
Output Voltage Temperature Stability	△V_{OUT} / V_{OUT}	T_J=0~125℃		-	1	-	%
Minimum Load Current to Maintain Regulation	$I_{O(MIN)}$	V_I-V_O=40V	T_J=0~125℃	-	3.5	10	mA
Maximum Output Current	$I_{O(MAX)}$	V_I-V_O≦15V	T_J=0~125℃	1.5	2.2	-	A
		V_I-V_O=40V	T_J=25℃	0.15	0.4	-	
Output Noise Voltage @% of V_{OUT}	eN	10Hz≦f≦10kHz	T_J=25℃	-	0.003	-	%
Ripple Rejection	RR	f=100Hz	C_{ADJ}=0μF [2]	-	60	-	dB
			C_{ADJ}=10μF [2]	-	65	-	
		f=1kHz	C_{ADJ}=0μF [2]	-	64	-	
			C_{ADJ}=10μF [2]	-	75	-	

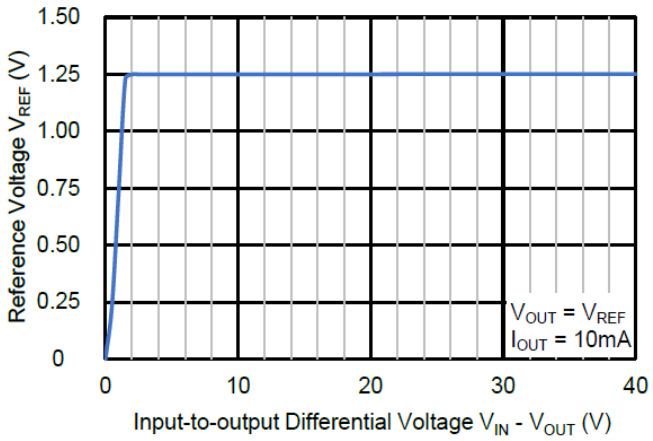
Notes:

1. The line regulation is calculated by the following formula:
   LNR= △V_{OUT} / V_{OUT} x △V_{IN}
   where, ΔV_{OUT} is the variation of the output voltage, ΔV_{IN} is the variation of the input voltage.
2. C_{ADJ} is connected between the ADJ terminal and GND.

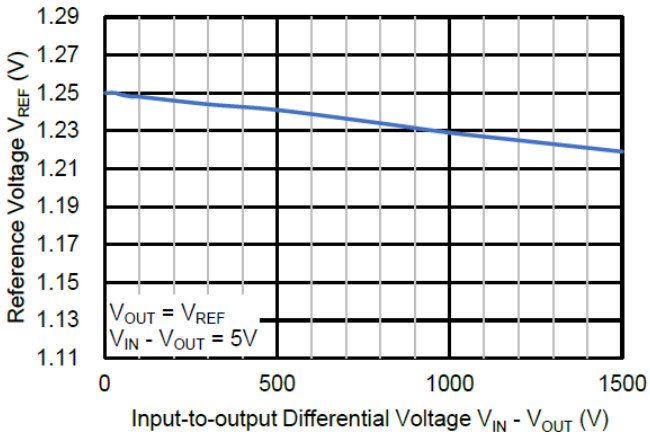
TYPICAL CHARACTERISTICS

(C_{IN} = 0.1μF, C_{OUT} = 1μF, unless otherwise specified)

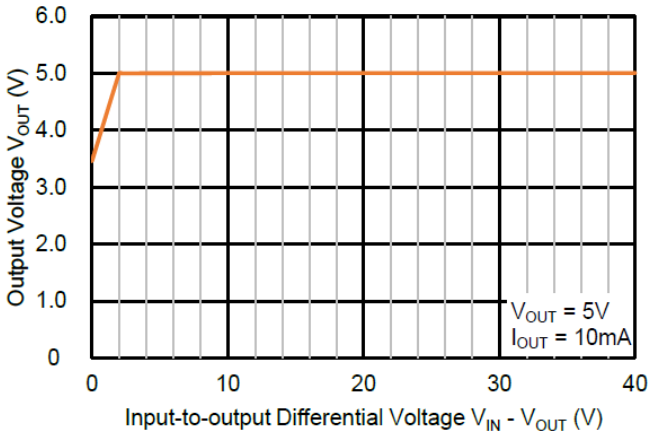
V_{REF} Output Line Regulation



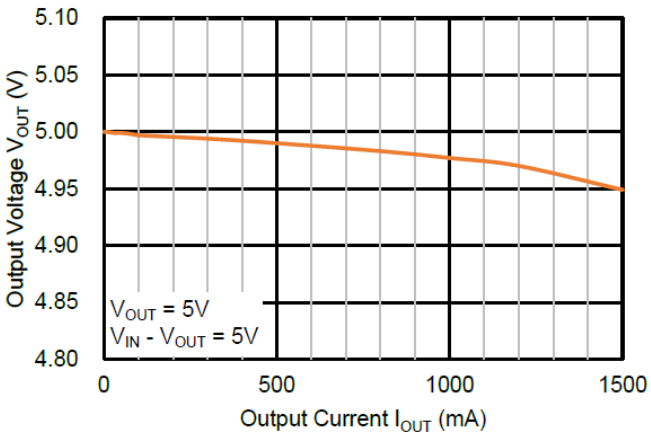
V_{REF} Output Load Regulation



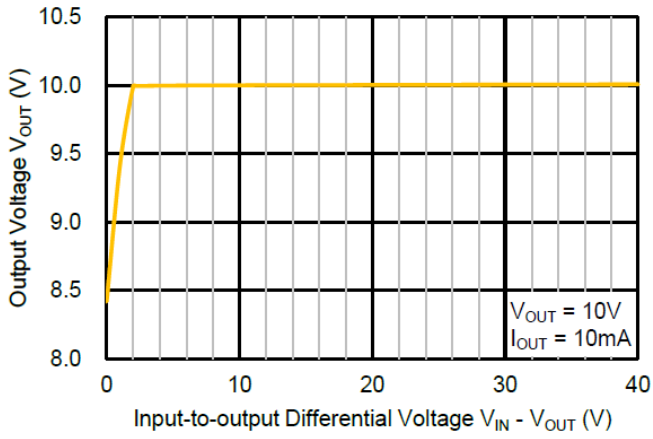
5V Output Line Regulation



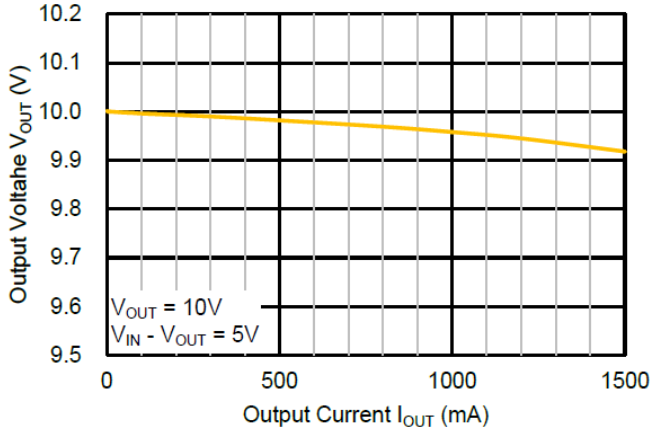
5V Output Load Regulation



10V Output Line Regulation



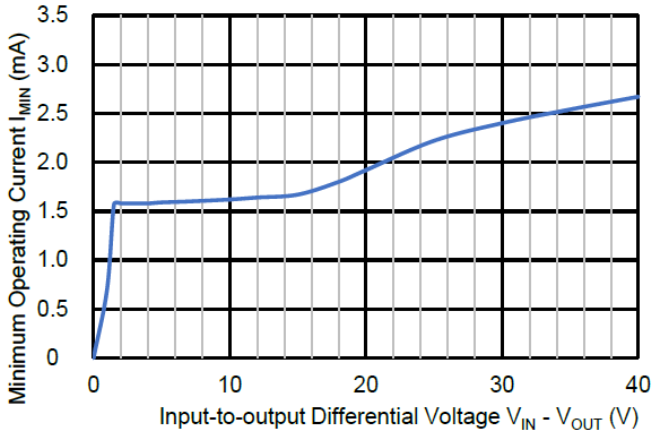
10V Output Load Regulation



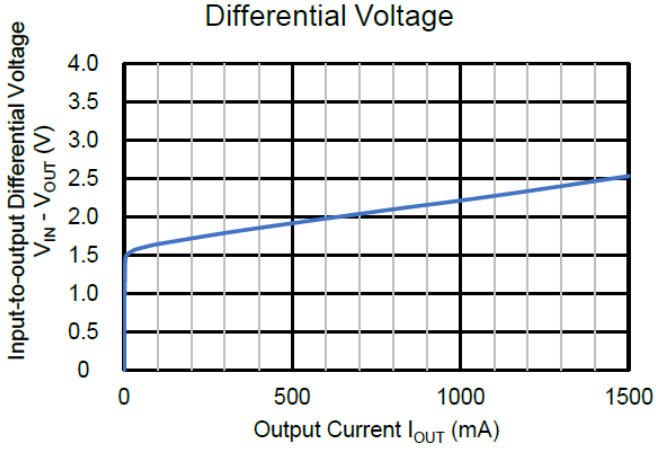
TYPICAL CHARACTERISTICS

(C_{IN} = 0.1μF, C_{OUT} = 1μF, unless otherwise specified)

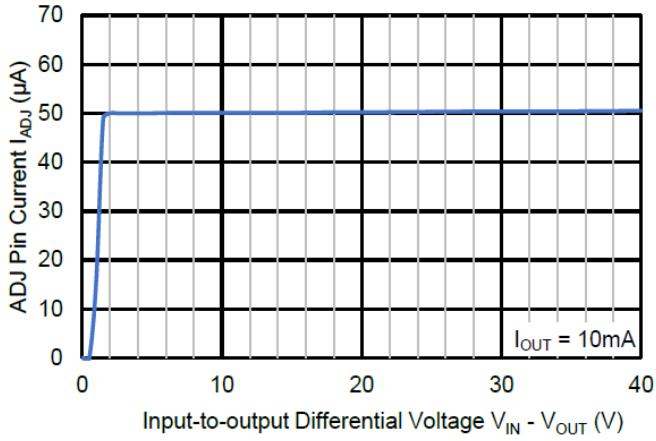
Minimum Operating Current



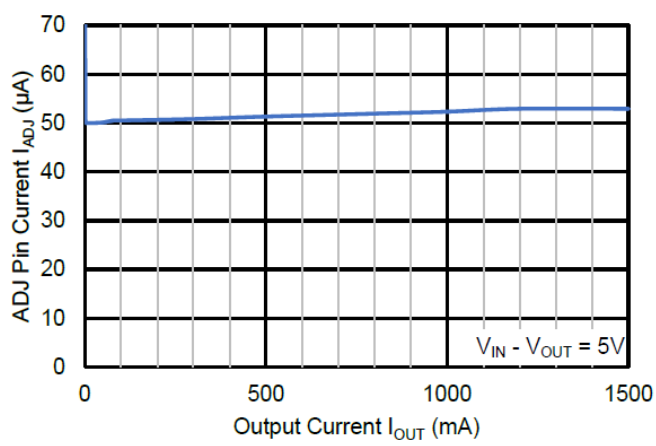
Minimum Operating Input-to-output Differential Voltage



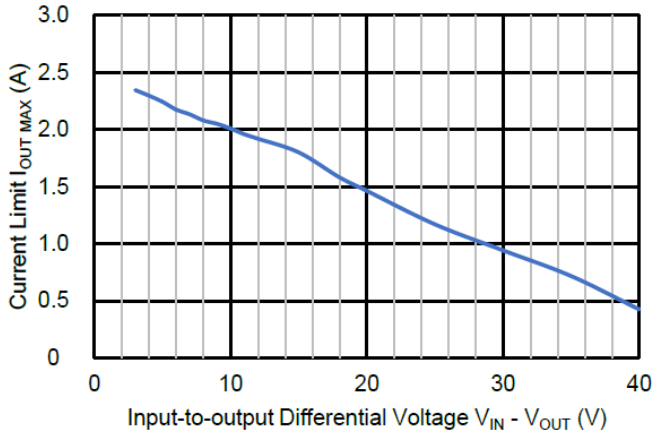
ADJ Pin Current



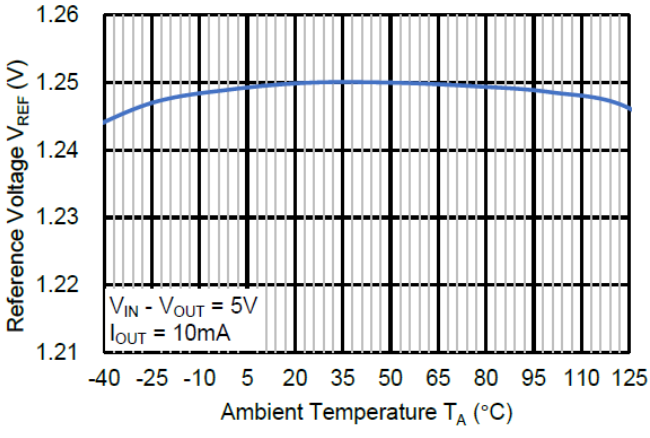
ADJ Pin Current



Current Limit



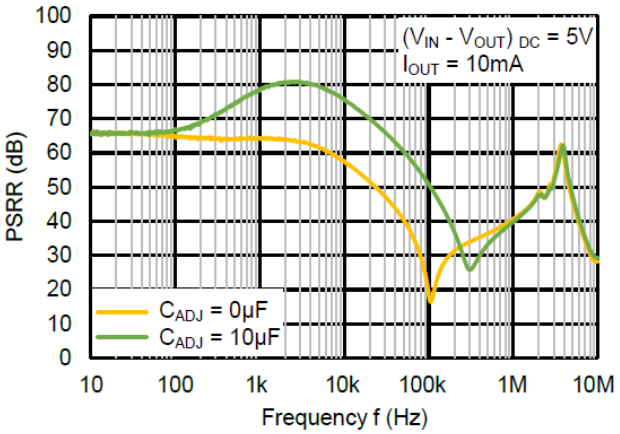
Temperature Characteristics



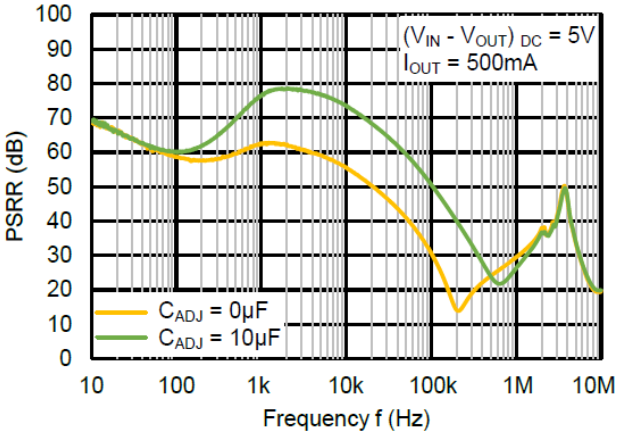
TYPICAL CHARACTERISTICS

(C_{IN} = 0.1μF, C_{OUT} = 1μF, unless otherwise specified)

Power Supply Rection Ratio

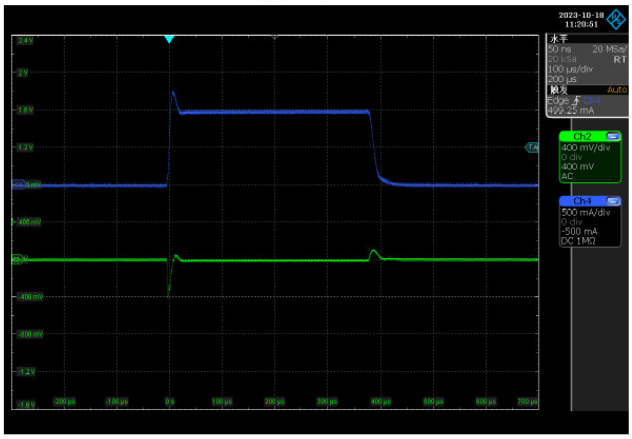


Power Supply Rection Ratio

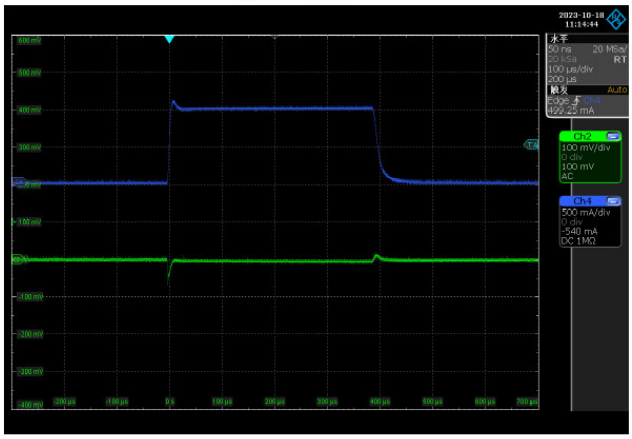


Load Transient (V_{OUT} = 10V, V_{IN} - V_{OUT} = 5V, I_{OUT} = 10 ~ 1000mA, CH_2: V_{OUT}, CH_4: I_{OUT})

C_{ADJ} = 0μF

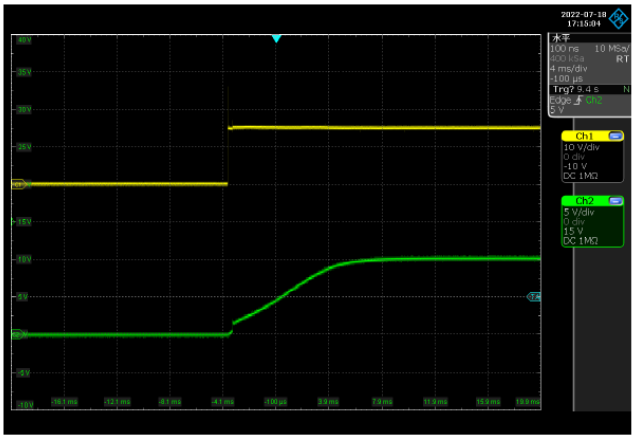


C_{ADJ} = 10μF

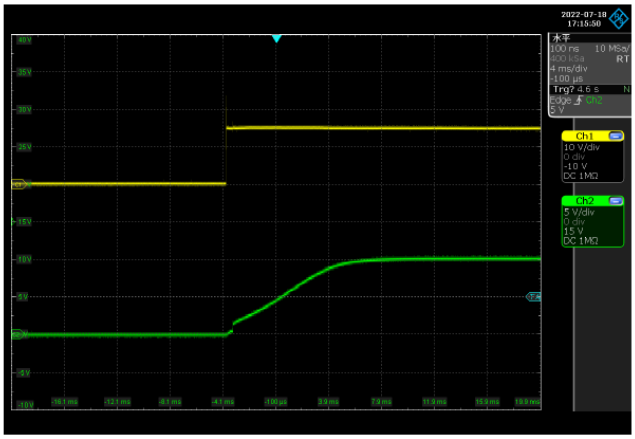


Power up Response (V_{OUT} = 10V, V_{IN} = 0 ~ (V_{OUT} +5V), C_{ADJ} = 10μF, CH_1: V_{IN}, CH_2: V_{OUT})

I_{OUT} = 10mA

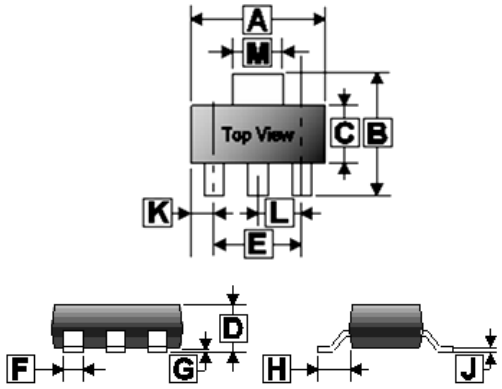


I_{OUT} = 1000mA



PACKAGE OUTLINE DIMENSIONS

SOT-223



REF.	Millimeter	
	Min.	Max.
A	5.90	6.70
B	6.70	7.30
C	3.30	3.80
D	1.40	1.90
E	4.60 REF.	
F	0.60	0.85
G	-	0.18
H	2.00 REF.	
J	0.20	0.40
K	1.10 REF.	
L	2.30 REF.	
M	2.80	3.20

MOUNTING PAD LAYOUT

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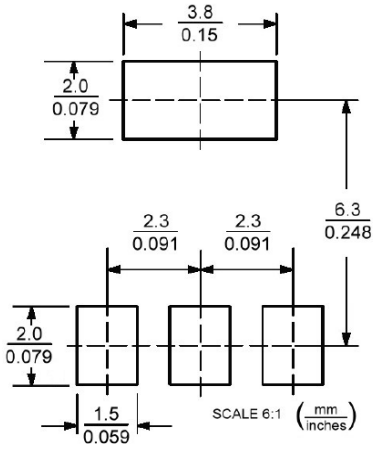

*Dimensions in millimeters