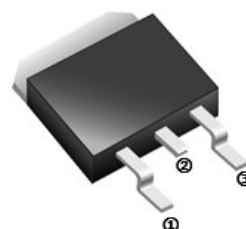


RoHS Compliant Product
A suffix of "-C" specifies halogen and lead-free

DESCRIPTION

The SULM317C-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.

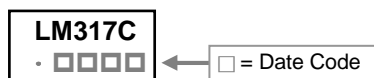
TO-263



FEATURES

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

MARKING

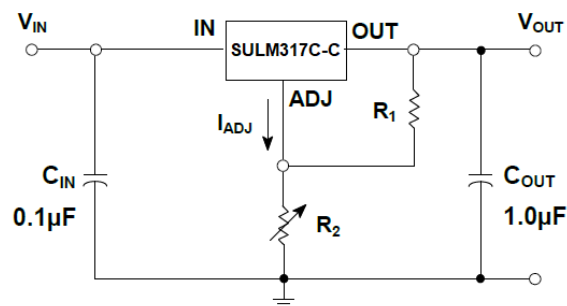


PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-263	0.8K	13 inch

ORDER INFORMATION

Part Number	Type
SULM317C-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	1.6	W
Thermal Resistance from Junction-Ambient ¹	$R_{\theta JA}$	62.5	°C/W
Thermal Resistance from Junction-Case ¹	$R_{\theta JC}$	5.5	
Storage Temperature @10s	T_{solder}	260	°C
Junction & Storage Temperature Range	T_J, T_{STG}	-40~125, -65~150	°C

Note:

1. Thermal metric is measured in still air with $T_A=25^\circ\text{C}$ and installed on a 1 in² FR-4 board covered with 2 ounces of copper.

ELECTRICAL CHARACTERISTICS

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

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

Notes:

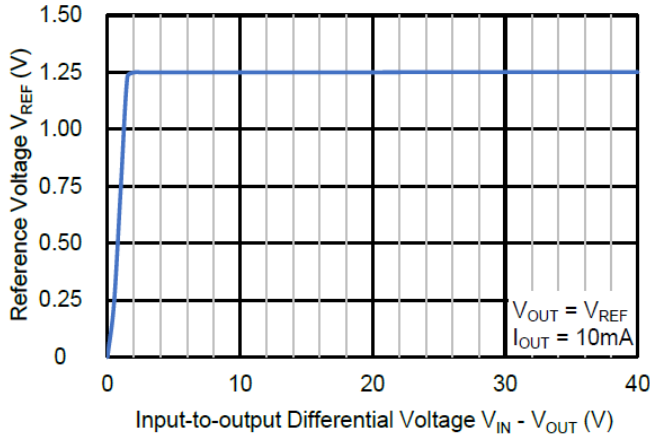
- The line regulation is calculated by the following formula:

$$LNR = \Delta V_{OUT} / V_{OUT} \times \Delta V_{IN}$$
 where, ΔV_{OUT} is the variation of the output voltage, ΔV_{IN} is the variation of the input voltage.
- C_{ADJ} is connected between the ADJ terminal and GND.

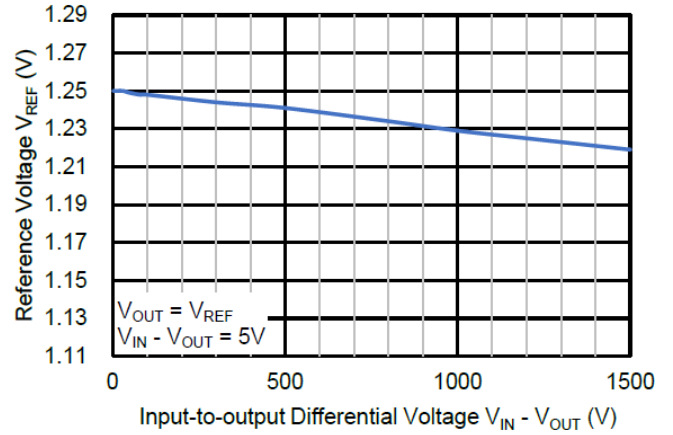
TYPICAL CHARACTERISTICS

($C_{IN} = 0.1\mu F$, $C_{OUT} = 1\mu F$, unless otherwise specified)

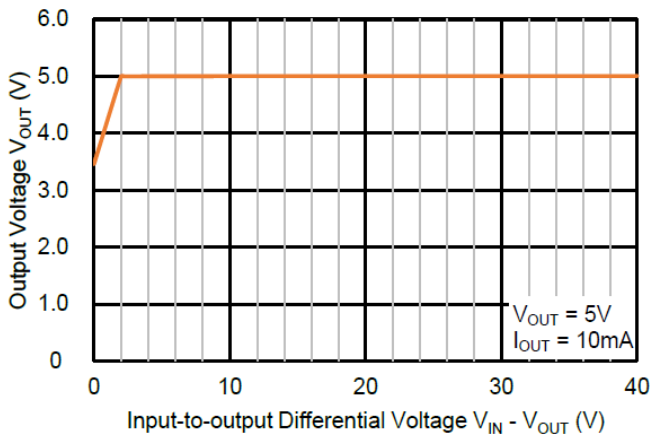
V_{REF} Output Line Regulation



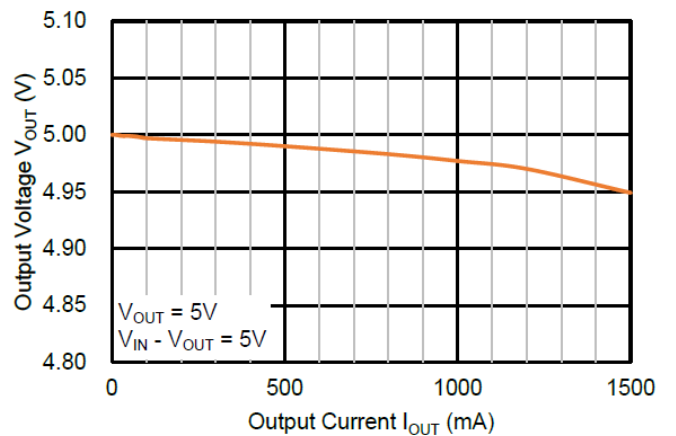
V_{REF} Output Load Regulation



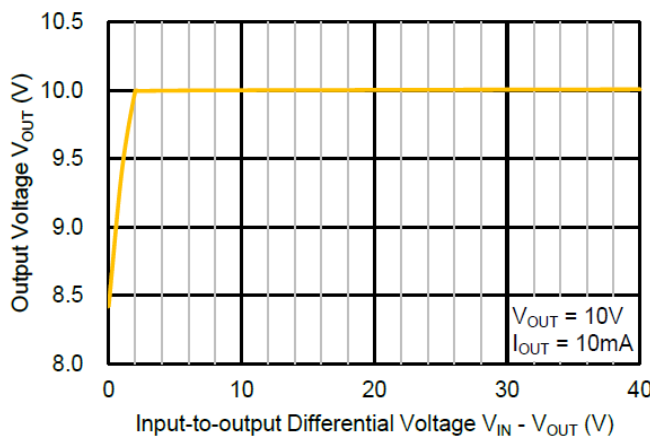
5V Output Line Regulation



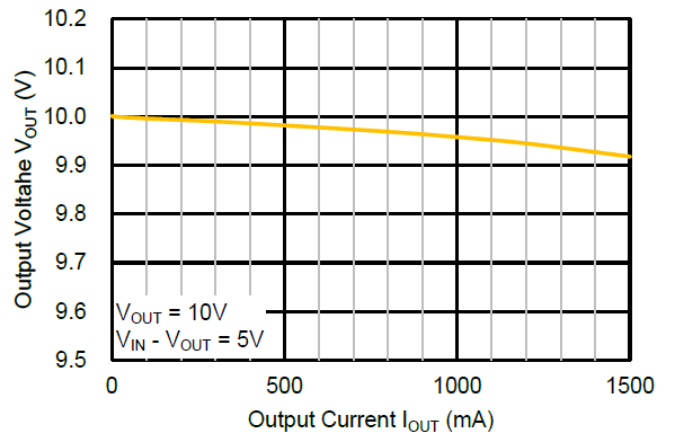
5V Output Load Regulation



10V Output Line Regulation



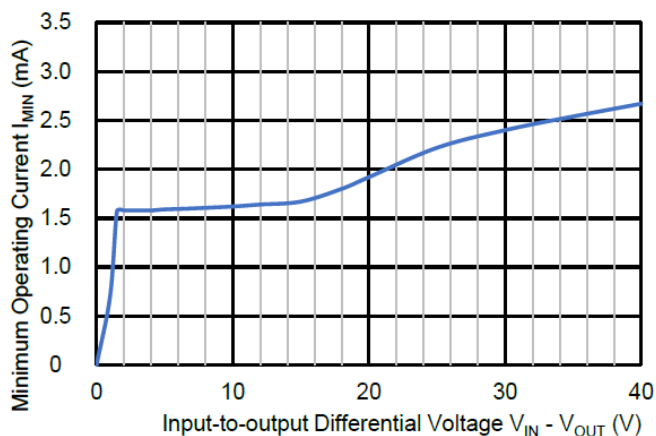
10V Output Load Regulation



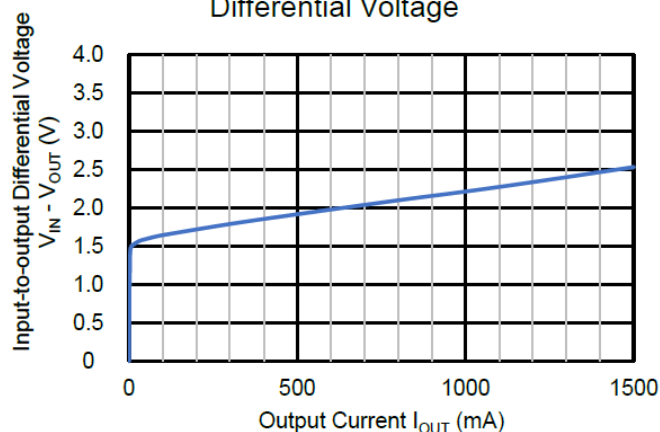
TYPICAL CHARACTERISTICS

($C_{IN} = 0.1\mu F$, $C_{OUT} = 1\mu F$, unless otherwise specified)

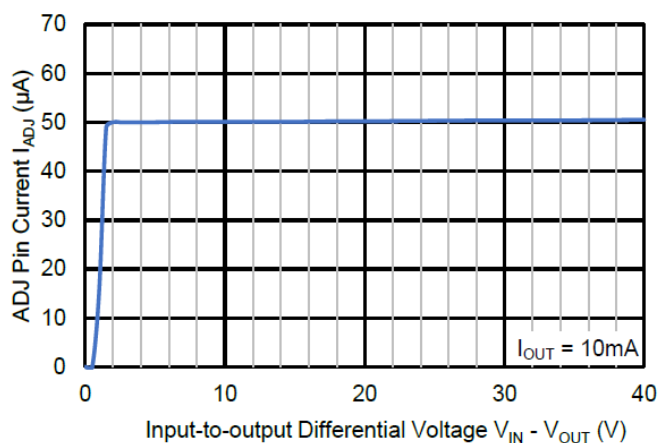
Minimum Operating Current



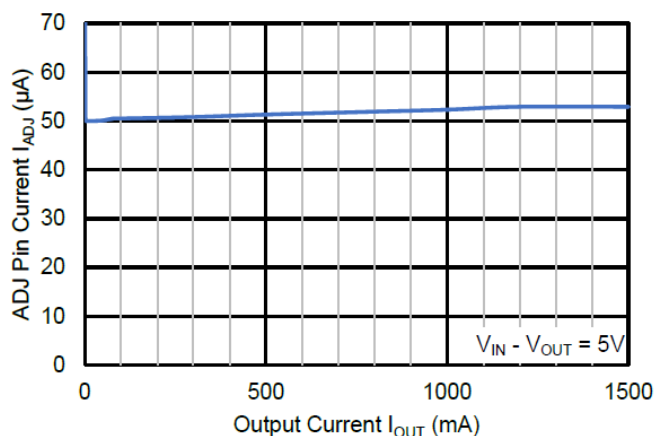
Minimum Operating Input-to-output Differential Voltage



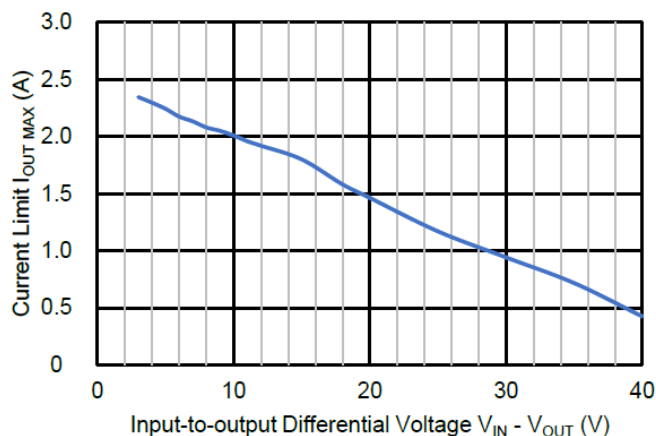
ADJ Pin Current



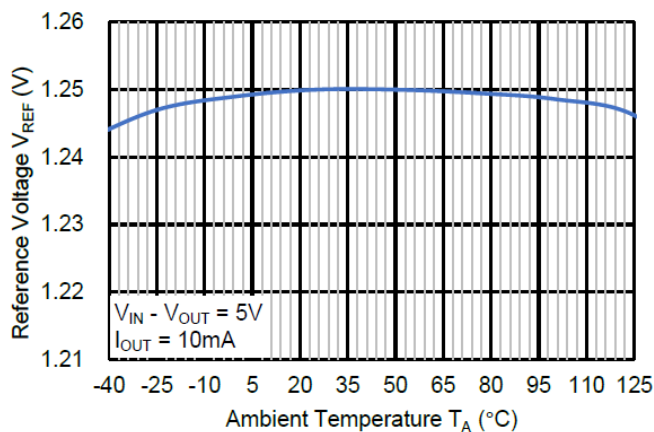
ADJ Pin Current



Current Limit



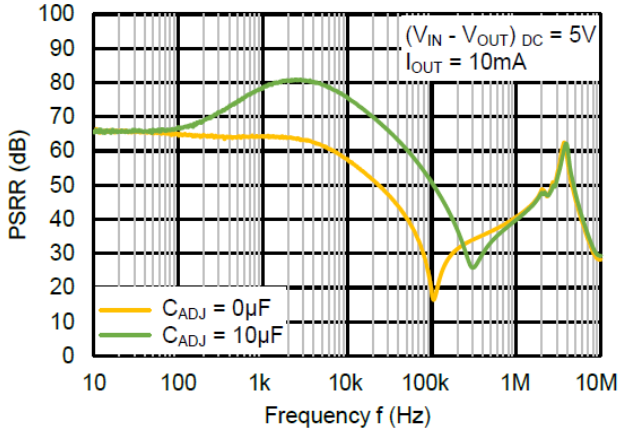
Temperature Characteristics



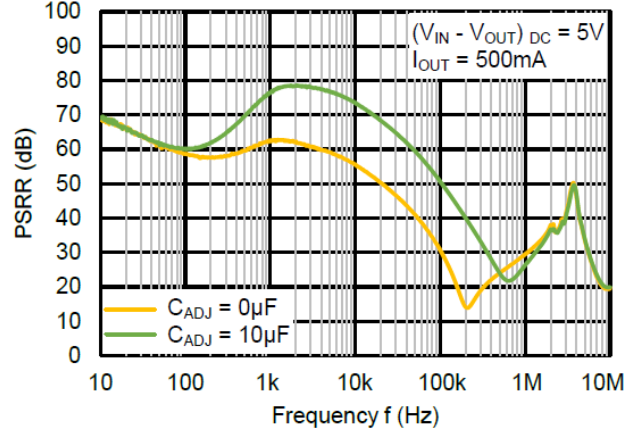
TYPICAL CHARACTERISTICS

($C_{IN} = 0.1\mu F$, $C_{OUT} = 1\mu F$, unless otherwise specified)

Power Supply Rejection Ratio

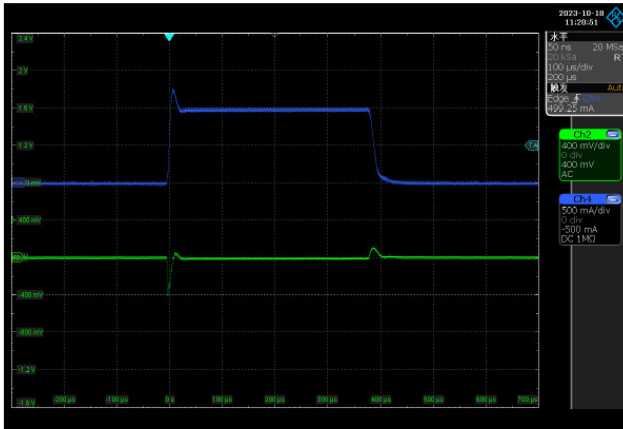


Power Supply Rejection Ratio

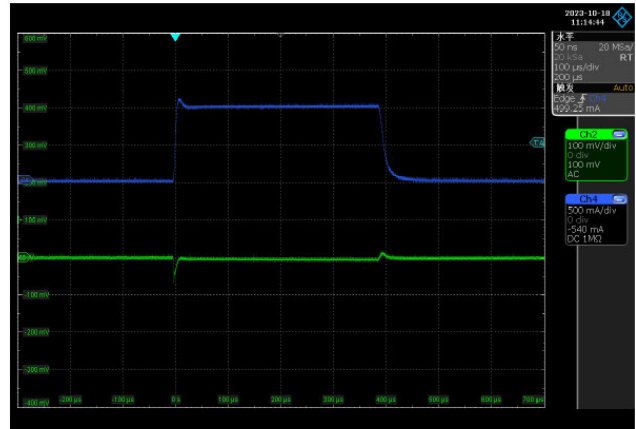


Load Transient ($V_{OUT} = 10V$, $V_{IN} - V_{OUT} = 5V$, $I_{OUT} = 10 \sim 1000mA$, CH2: V_{OUT} , CH4: I_{OUT})

$C_{ADJ} = 0\mu F$

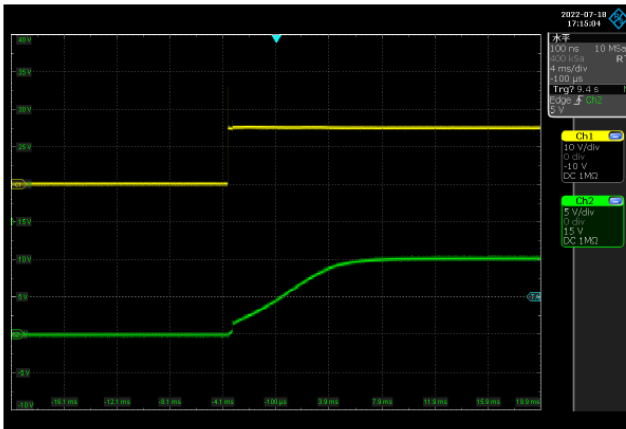


$C_{ADJ} = 10\mu F$

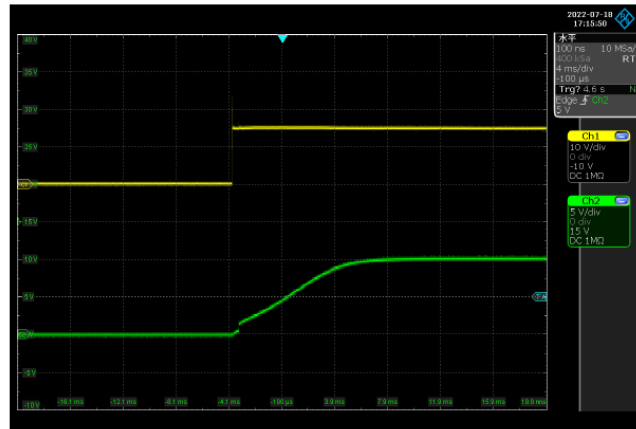


Power up Response ($V_{OUT} = 10V$, $V_{IN} = 0 \sim (V_{OUT} + 5V)$, $C_{ADJ} = 10\mu F$, CH1: V_{IN} , CH2: V_{OUT})

$I_{OUT} = 10mA$

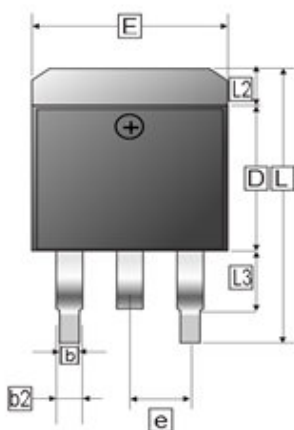


$I_{OUT} = 1000mA$



PACKAGE OUTLINE DIMENSIONS

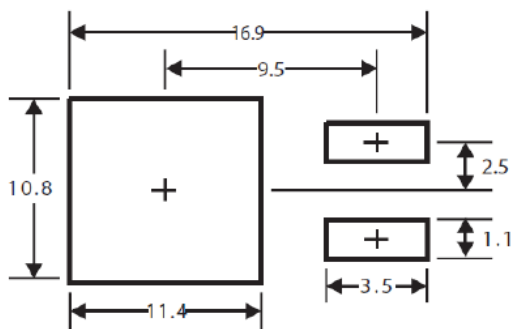
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REF.	Millimeter	
	Min.	Max.
A	4.00	4.87
b	0.508	1.01
L4	0	0.30
C	0.30	0.74
L3	1.50 REF.	
L1	2.50 REF.	
E	9.60	10.67
c2	1.07	1.65
b2	1.34 REF.	
D	8.00	9.652
e	2.54 REF.	
L	14.6	16.1
L2	1.27 REF.	

MOUNTING PAD LAYOUT

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*Dimensions in millimeters