

LCC20



LCC4



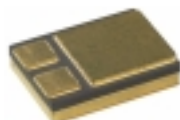
TO-204AA (TO-3)



TO-213AA (TO-66)



SMD05 (TO-276AA)



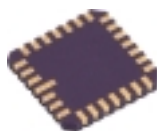
SMD1 (TO-276AB)



TO-257AA



TO-258AA



LCC28

1 AMP LOW DROPOUT REGULATOR FOR 5V TO 3.3V CONVERSION

FEATURES

- OUTPUT VOLTAGE SPECIFIED OVER TEMPERATURE RANGE
- EXCELLENT LOAD REGULATION
- GUARANTEED 1A OUTPUT CURRENT
- BUILT IN PROTECTION AGAINST EXCESS TEMPERATURE
- SHORT CIRCUIT PROTECTED

The LM3940 is a 1A low dropout regulator designed to provide 3.3V from a 5V supply. It is a true low dropout regulator, it can hold its 3.3V output in regulation with input voltages as low as 4.5V.

The regulator is available in a variety of hermetically sealed packages and has the option of being screened to both JAN and Space levels

ABSOLUTE MAXIMUM RATINGS¹ ($T_{case} = 25^{\circ}C$ unless otherwise stated)

V_I	Maximum Input Supply Voltage	7.5V
V_O	Nominal Output Voltage	3.3V
I_O	Output Current	1A
P_D	Power Dissipation	See Table
T_J	Operating Junction Temperature Range	-40 to +125°C
T_{STG}	Storage Temperature	-65 to 150°C

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

Electrical Characteristics

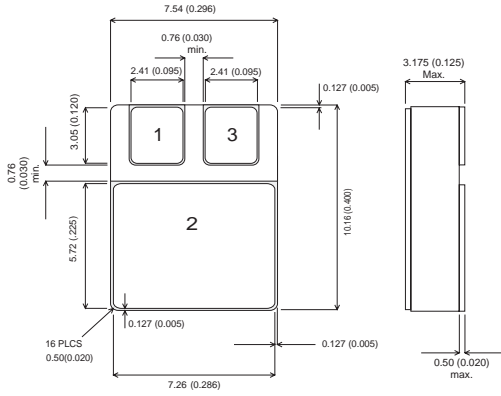
Parameter	Test Conditions	Min	Typ	Max	Units
V_{OUT} Output Voltage	$5mA \leq I_L \leq 1A$	3.13	3.3	3.47	V
$\frac{\Delta V_{OUT}}{\Delta V_{IN}}$ Line Regulation	$I_L = 5mA$		20	40	mV
$\frac{\Delta V_{OUT}}{\Delta I_{OUT}}$ Load Regulation ¹	$50mA \leq I_L \leq 1A$		35	80	
Z_O Output impedance	$I_L(DC) = 100mA, I_L(AC) = 20mA(rms), f = 120Hz$		35		$m\Omega$
I_Q Quiescent Current	$4.5V \leq V_{IN} \leq 5.5V, I_L = 5mA$		10	20	mA
	$V_{IN} = 5V, I_L = 5mA$		110	250	
e_n Output Noise Voltage	$BW = 10Hz-100kHz, I_L = 5mA$		150		μV (rms)
$V_O - V_{IN}$ Dropout Voltage ²	$I_L = 1A$		0.5	1.0	V
	$I_L = 100A$		110	200	mV
I_L (SC)	$R_L = 0$	1.2	1.7		A

Thermal Characteristics

Parameter	Package Style	$R\theta_{JC}$	$R\theta_{JA}$
Thermal Resistance (Junction to Ambient) And Thermal Resistance (Junction to Case) ³	TO-204AA (TO-3)	4.0 °C/W	50 °C/W
	TO-213AA (TO-66)	4.5 °C/W	55 °C/W
	SMD05 (TO-276AA)	4.75 °C/W	65 °C/W
	SMD1 (TO-276AB)	4.75 °C/W	65 °C/W
	TO-257AA	5.0 °C/W	65 °C/W
	TO-258AA	4.5 °C/W	55 °C/W
	LCC4	20 °C/W	150 °C/W
	LCC20	25 °C/W	165 °C/W
	LCC28	22 °C/W	160 °C/W

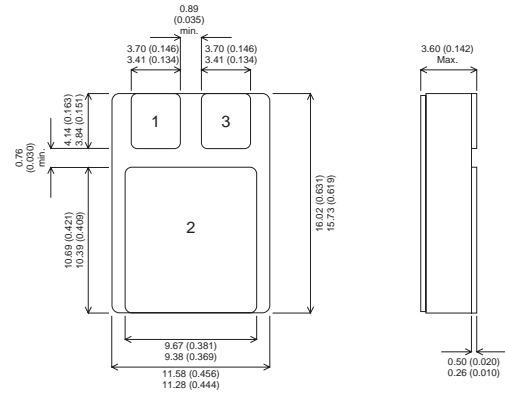
- 1) Absolute maximum ratings indicate limits beyond which damage to the component may occur. Electrical specifications do not apply when operating the device outside of its rated operating conditions.
- 2) Dropout voltage is defined as the input-output differential voltage where the regulator output drops to a value that is 100 mV below the value that is measured at $V_{IN} = 5V$.
- 3) Exceeding the maximum allowable power dissipation will cause excessive die temperature, and the regulator will go into thermal shutdown.

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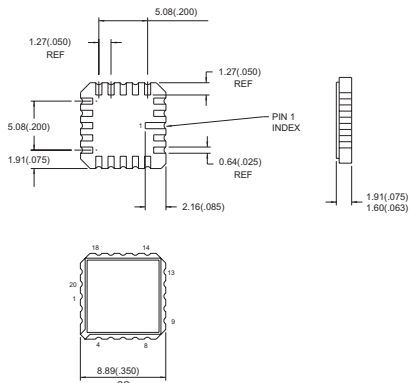
Pin 1 – ADJ
Pin 2 – V_{OUT}
Pin 3 – V_{IN}

Ceramic Surface Mount –SMD05 (TO-276AA)



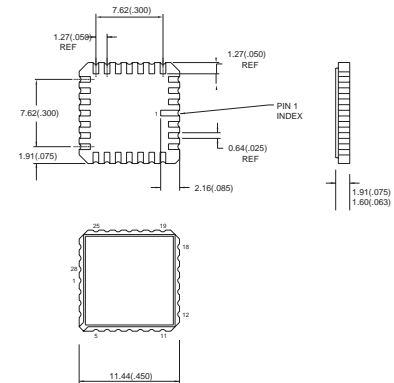
Pin 1 – ADJ
Pin 2 – V_{OUT}
Pin 3 – V_{IN}

Ceramic Surface Mount –SMD1 (TO-276AB)



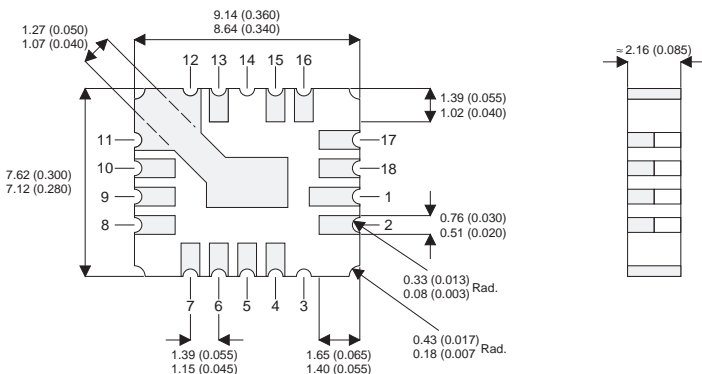
Pin 1 – ADJ
Pin 2 – V_{OUT}
Pin 3 – V_{IN}

LCC20 (Z) Package –Ceramic Surface Mount



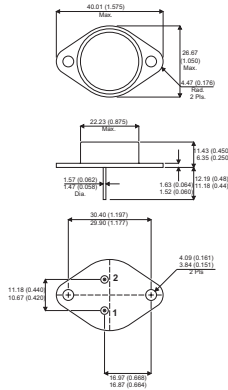
Pin 1 – ADJ
Pin 2 – V_{OUT}
Pin 3 – V_{IN}

LCC28 (Y) Package –Ceramic Surface Mount



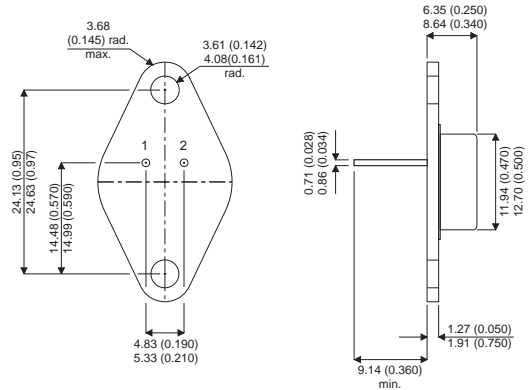
Pins 4,5 – Adjust
Pins 6,7,8,9,10,11,12,13 – V_{IN}
Pin 15,16,17,18,1,2 – V_{OUT}
E Package - CERAMIC SURFACE MOUNT

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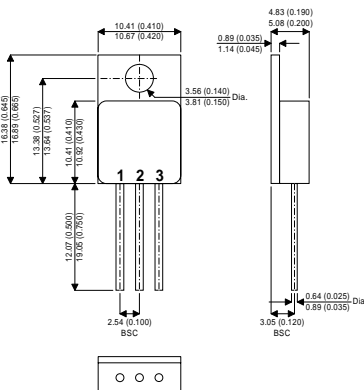
Pin 1 – ADJ
Pin 2 – V_{OUT}
Pin 3 – V_{IN}

K Package –TO-204AA (TO-3)



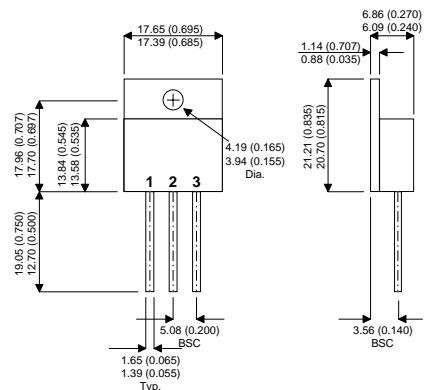
Pin 1 – ADJ
Pin 2 – V_{OUT}
Pin 3 – V_{IN}

R Package –TO-213AA (TO-66)



Pin 1 – ADJ
Pin 2 – V_{OUT}
Pin 3 – V_{IN}

G/IG Package –TO-257AA (TO-220)



Pin 1 – ADJ
Pin 2 – V_{OUT}
Pin 3 – V_{IN}

H Package –TO-258AA

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