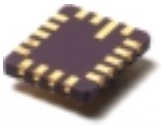
SEME LAB

LM3940



LCC20

LCC4

TO-204AA (TO-3)

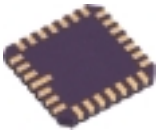
TO-213AA (TO-66)

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 RATINGS[1] (T_{case} = 25°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

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Electrical Characteristics

Parameter	Test Conditions	Min	Typ	Max	Units
V_{OUT} Output Voltage	$5mA \le I_L \le 1A$	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]	$50mA \le I_L \le 1A$		35	80	mV
Z_O Output impedance	$I_{L(DC)} = 100mA$, $I_{L(AC)} = 20mA(rms)$, f = 120Hz		35		mΩ
I_Q Quiescent Current	$4.5V \le V_{IN} \le 5.5V$, $I_L = 5mA$		10	20	mA
	$V_{IN} \ge 5V$, $I_L = 5mA$		110	250	mA
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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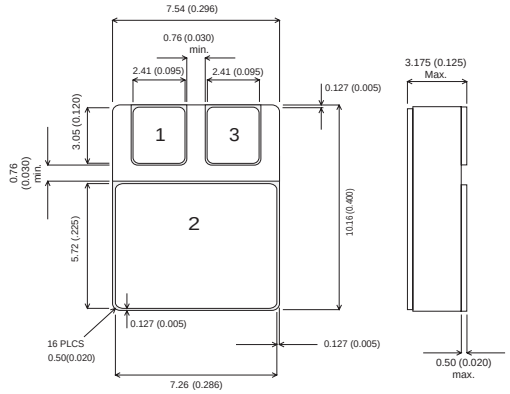
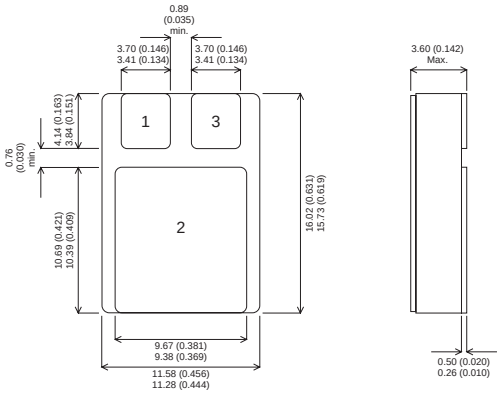


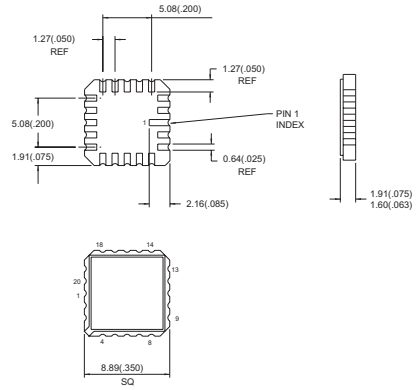
Pin 1 – ADJ
Pin 2 – V_{OUT}
Pin 3 – V_{IN}

Ceramic Surface Mount –SMD05 (TO-276AA)



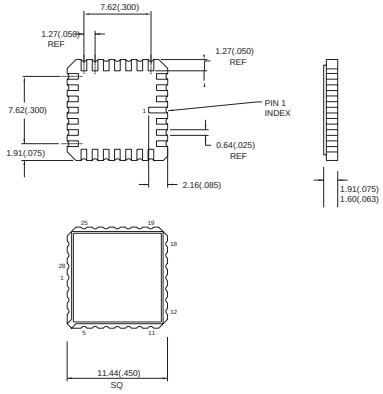
Pin 1 – ADJ
Pin 2 – V_{OUT}
Pin 3 – V_{IN}

Ceramic Surface Mount –SMD1 (TO-276AB)



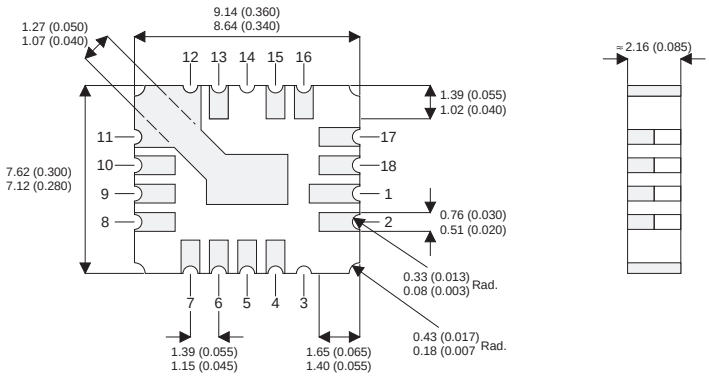
Pin 1 – ADJ
Pin 2 – V_{OUT}
Pin 3 – V_{IN}

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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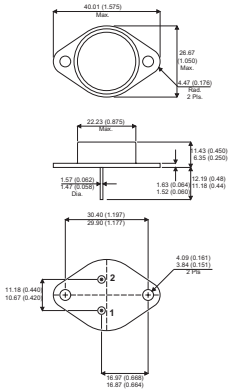
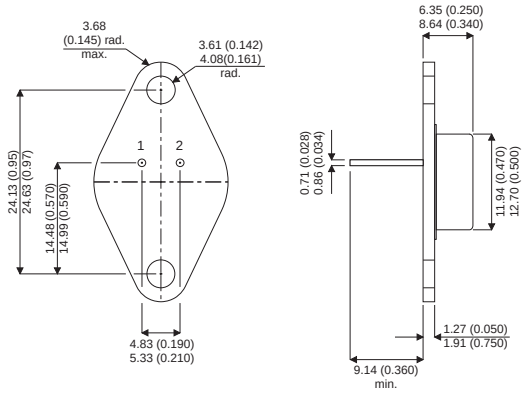


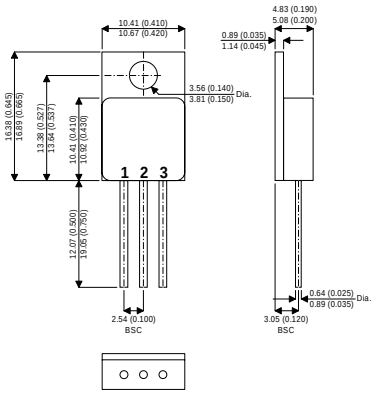
Pin 1 – ADJ
Pin 2 – V_{OUT}
Pin 3 – V_{IN}

K Package –TO-204AA (TO-3)



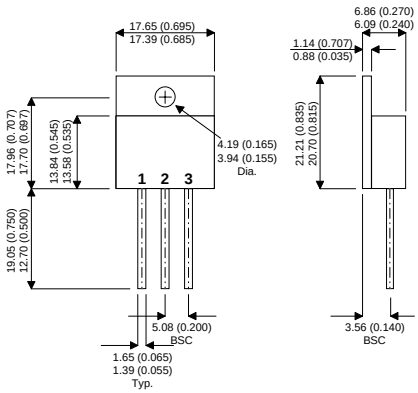
Pin 1 – ADJ
Pin 2 – V_{OUT}
Pin 3 – V_{IN}

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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