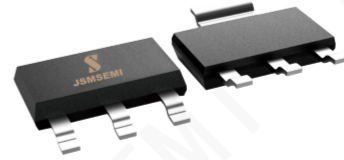


General Description

The TLV1117-50IDCYR is a series of low dropout three-terminal regulators with a dropout of 1.5V at 1A output current.

The TLV1117-50IDCYR series provides current limiting and the mal shutdown. Its circuit includes a immed band gapreference to assure output voltage accuracy to be within 1% for 3.3V, 5.0V and adjustable versions or 2% for 1.2V version. Current limit is immed to ensure specified output current and conolled short-circuit current. On-chip thermal shut-down provides protection against any combination of overload and ambient temperature that would create excessive junction temperature.

The TLV1117-50IDCYR has an adjustable version that can provide the output voltage from 1.25V to 12V with only 2 external resistors. The TLV1117-50IDCYR series is available in the indusy standard SOT-223,3 power packages.



SOT-223

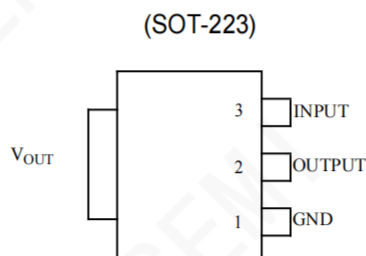
Applications

- PC Motherboard
- LCD Monitor
- Graphic Card
- DVD-video Player
- NIC/Switch
- Telecom Equipment
- ADSL Modem
- Printer and other Peripheral Equipment

Features

- Low Dropout Voltage: 1.15V at 1A Output Current
- immed Current Limit
- On-chip Thermal Shutdown
- Three-terminal Adjustable or Fixed 3.3V, 5.0V
- Operation Junction Temperature: -40 to 125°C

Pin Configuration



Absolute Maximum Ratings (Note 1)

Parameter	Symbol	Min	Max	Unit
Input Voltage	V_{IN}		20	V
Maximum Junction Temperature	T_J		150	°C
Storage Temperature	T_S	-65	150	°C
Lead Temperature (Soldering, 10sec)	T_{LEAD}		300	°C
ESD (Machine Model)	ESD		600	V

Recommended Operating Conditions

Parameter	Symbol	Min	Max	Unit
Input Voltage	V_{IN}		15	V
Operating Junction Temperature Range	T_J	-40	125	°C

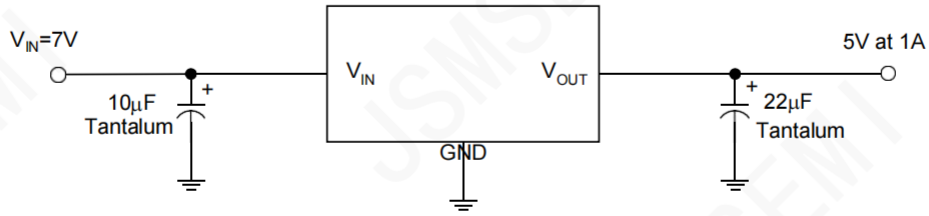
Electrical Characteristics (Continued)

TLV1117-50IDCYR Electrical Characteristics

 Operating Conditions: $V_{IN} \leq 10V$, $T_J = 25^\circ C$, unless otherwise specified.

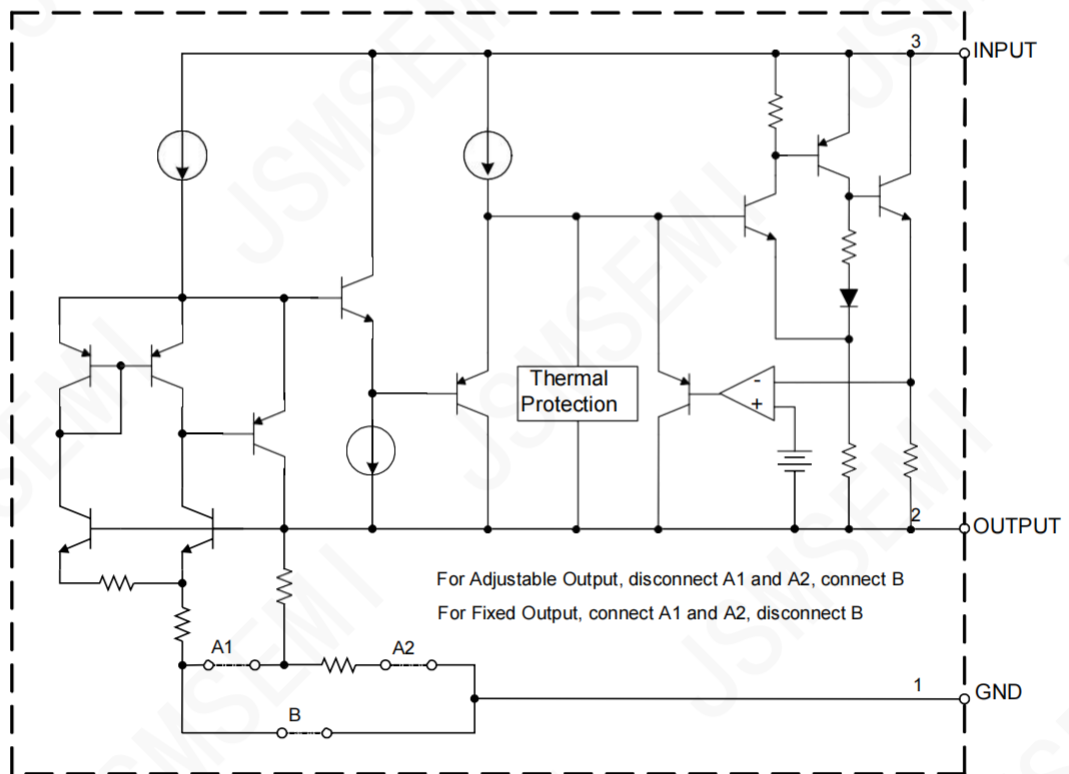
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	$I_{OUT} = 10mA$, $V_{IN} = 7.0V$ $10mA \leq I_{OUT} \leq 1A$, $6.5V \leq V_{IN} \leq 12V$	4.950 4.900	5.0 5.0	5.050 5.100	V
Line Regulation	ΔV_{OUT}	$I_{OUT} = 10mA$, $1.5V \leq V_{IN} - V_{OUT} \leq 10V$		1	10	mV
Load Regulation	ΔV_{OUT}	$V_{IN} - V_{OUT} = 2V$, $10mA \leq I_{OUT} \leq 1A$		1	15	mV
Dropout Voltage		$\Delta V_{OUT} = 1\%$, $I_{OUT} = 0.1A$		1.00	1.1	V
		$\Delta V_{OUT} = 1\%$, $I_{OUT} = 0.5A$		1.08	1.18	V
		$\Delta V_{OUT} = 1\%$, $I_{OUT} = 1.0A$		1.15	1.25	V
Current Limit	I_{LIMIT}	$V_{IN} - V_{OUT} = 2V$	1.25	1.35		A
Quiescent Current		$V_{IN} = V_{OUT} + 1.25V$		5	10	mA
Ripple Rejection		$f = 120Hz$, $C_{OUT} = 22\mu F$ Tantalum, $V_{IN} - V_{OUT} = 3V$, $I_{OUT} = 1A$	60	75		dB
Temperature Stability				0.5		%
Long -Term Stability		$T_A = 125^\circ C$, 1000hrs		0.3		%
RMS Output Noise (% of V_{OUT})		$T_A = 25^\circ C$, $10Hz \leq f \leq 10kHz$		0.003		%
Thermal Resistance, Junction to Case	θ_{JC}	SOT-223		15		°C/W
Thermal Shutdown		Junction Temperature		150		°C
Thermal Shutdown Hysteresis				25		°C

Typical Applications



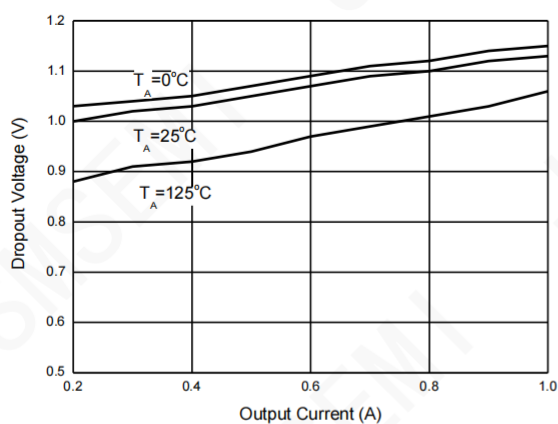
Typical Applications of TLV1117-50IDCYR

Functional Block Diagram

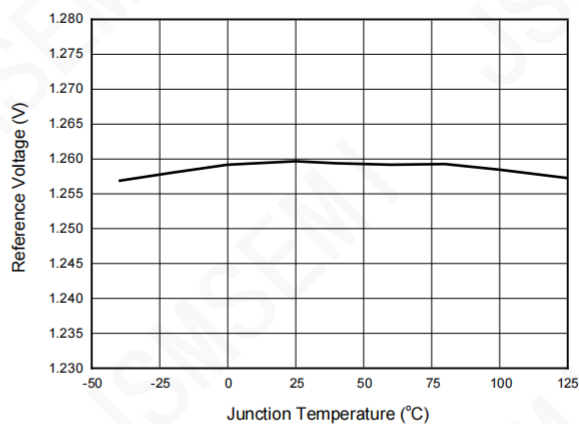


Functional Block Diagram of TLV1117-50IDCYR

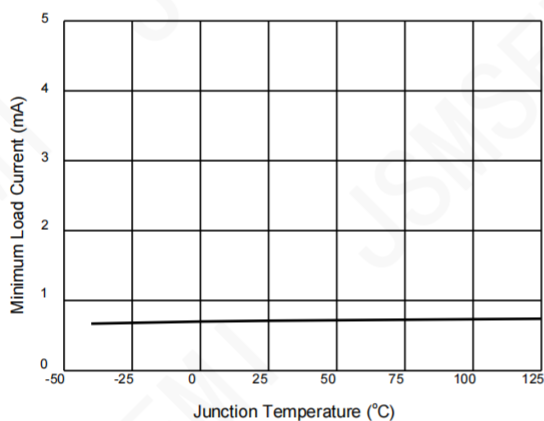
Typical Performance Characteristics



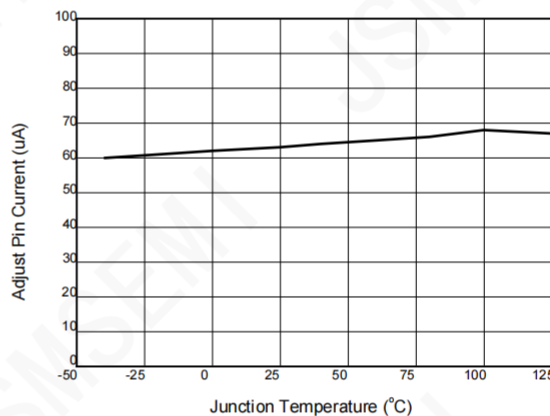
Dropout Voltage vs. Output Current



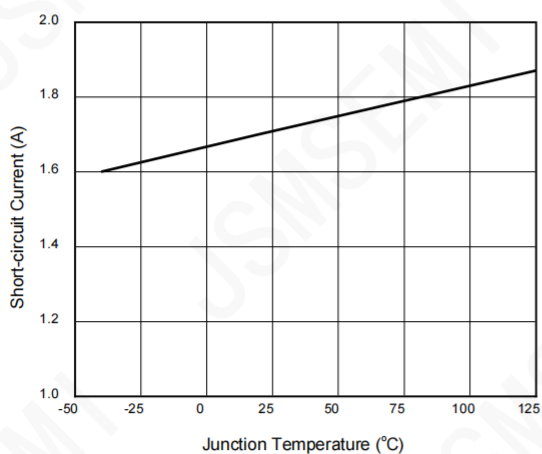
Reference Voltage vs. Junction Temperature



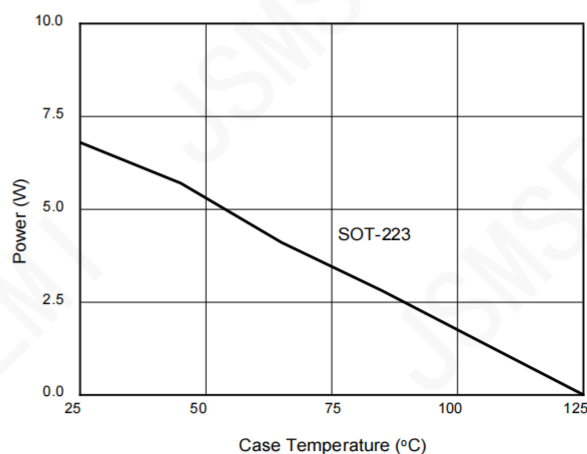
Minimum Load Current vs. Junction Temperature



Adjust Pin Current vs. Temperature

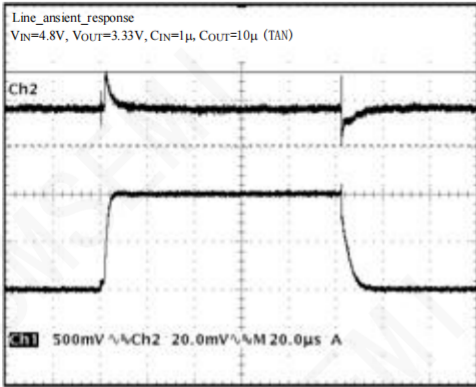


Short-Circuit Current vs. Junction Temperature

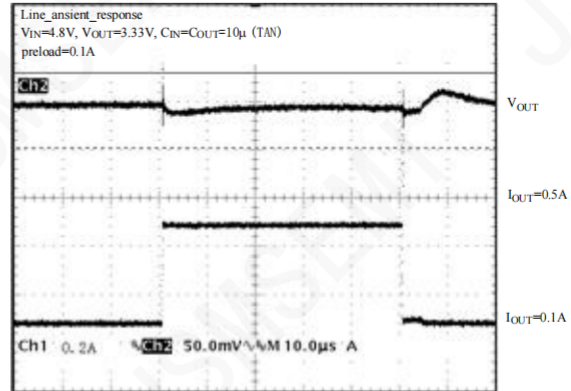


Maximum Power Dissipation

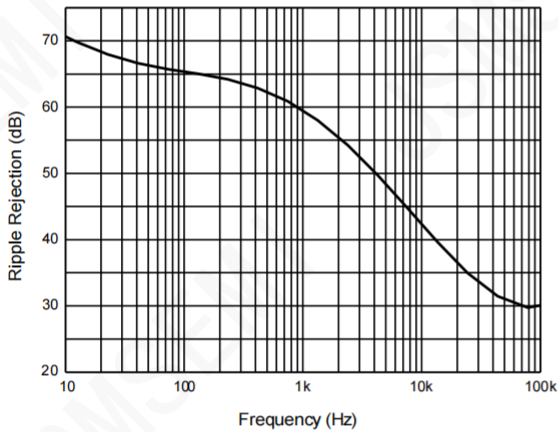
Typical Performance Characteristics (Continued)



Line transient Response



Load transient Response



Ripple Rejection vs. Frequency

Mechanical Dimensions

SOT-223

Unit: mm(inch)

