1A LOW DROPOUT LINEAR REGULATOR

Description

The AZ1117 is a series of low dropout three-terminal regulators with a dropout of 1.15V at 1A output current.

The AZ1117 series provides current limiting and thermal shutdown. Its circuit includes a trimmed bandgap reference to assure output voltage accuracy to be within 1% for 1.5V, 1.8V, 2.5V, 2.85V, 3.3V, 5.0V and adjustable versions or 2% for 1.2V version. Current limit is trimmed to ensure specified output current and controlled short-circuit current. On-chip thermal shutdown provides protection against any combination of overload and ambient temperature that would create excessive junction temperature.

The AZ1117 has an adjustable version, which can provide the output voltage from 1.25V to 12V with only 2 external resistors.

The AZ1117 series is available in the industry standard SOT223, SOT89, TO220-3, TO252-2 (3), TO252-2 (4), TO252-2 (5) and TO263 power packages.

Features

- Low Dropout Voltage: 1.15V at 1A Output Current
- Trimmed Current Limit
- On-chip Thermal Shutdown
- Three-terminal Adjustable or Fixed 1.2V, 1.5V, 1.8V, 2.5V, 2.85V, 3.3V, 5.0V
- Operation Junction Temperature: -40 to +125°C
- Lead-Free Packages: SOT223, SOT89, TO220-3, TO252-2 (3), TO252-2 (4), TO252-2 (5), TO263
- **Totally Lead-Free; RoHS Compliant (Notes 1 & 2)**

Applications

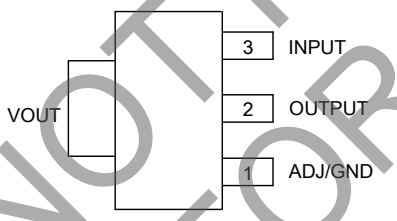
- PC Motherboard
- LCD Monitor
- Graphic Card
- DVD-video Player
- NIC/Switch
- Telecom Equipment
- ADSL Modem
- Printer and other Peripheral Equipment

Notes: 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.

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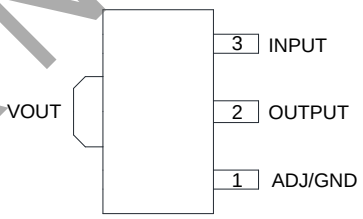
Pin Assignments

(Top View)



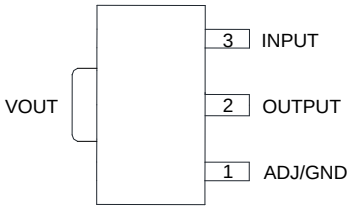
SOT223

(Top View)



SOT89 (Option 1)

(Top View)

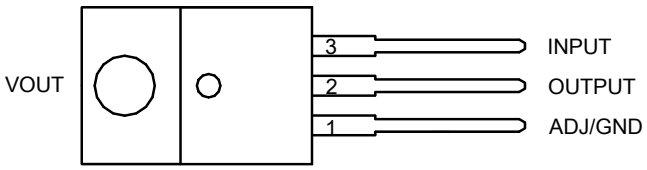


SOT89 (Option 2)

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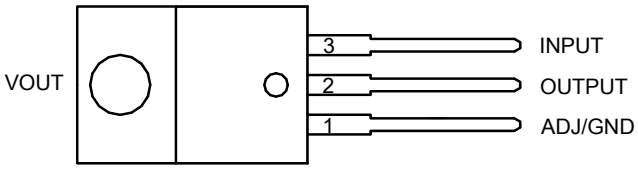
Pin Assignments (Cont.)

(Top View)



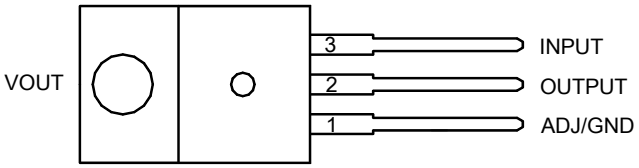
TO220-3 (Option 1)

(Top View)



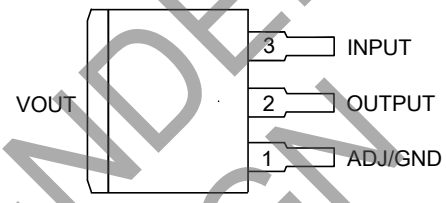
TO220-3 (Option 2)

(Top View)



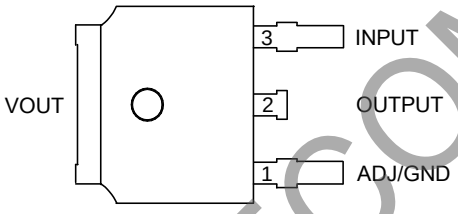
TO220-3 (Option 3)

(Top View)



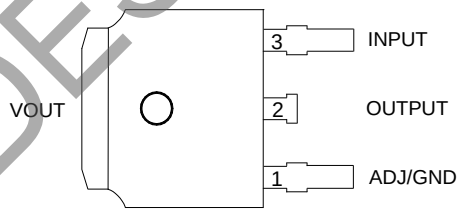
TO263

(Top View)



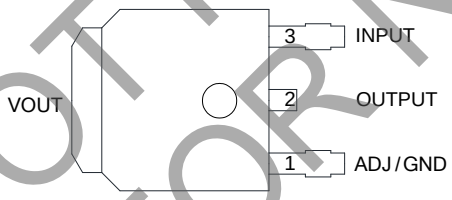
TO252-2 (3) (Option 1)

(Top View)



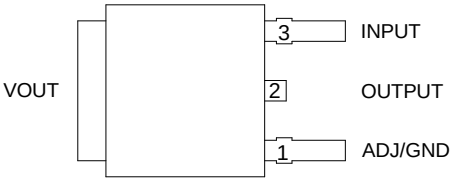
TO252-2 (3) (Option 2)

(Top View)



TO252-2 (4)

(Top View)

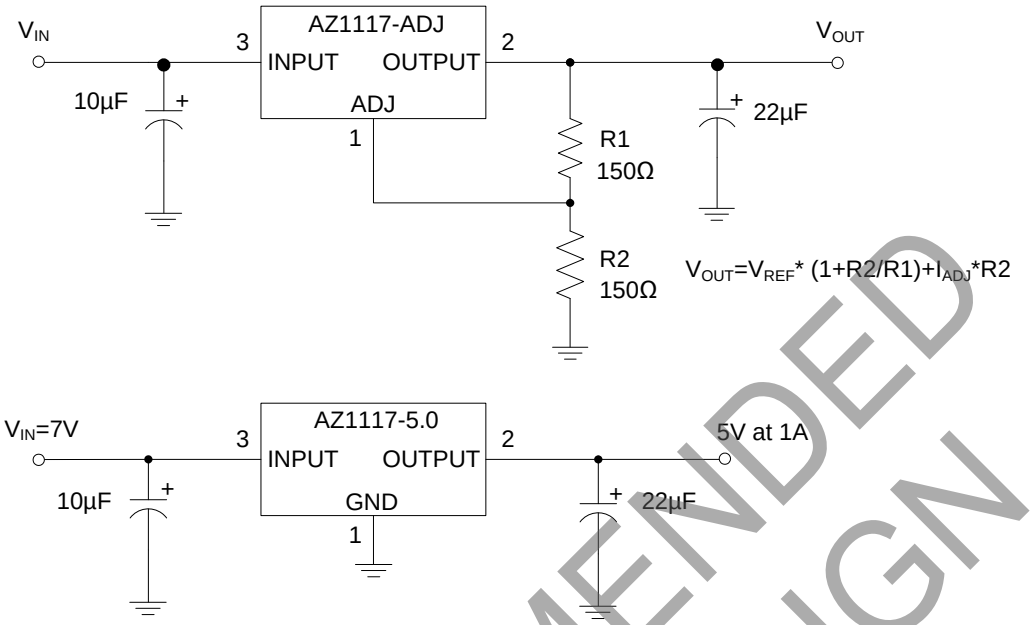


TO252-2 (5)

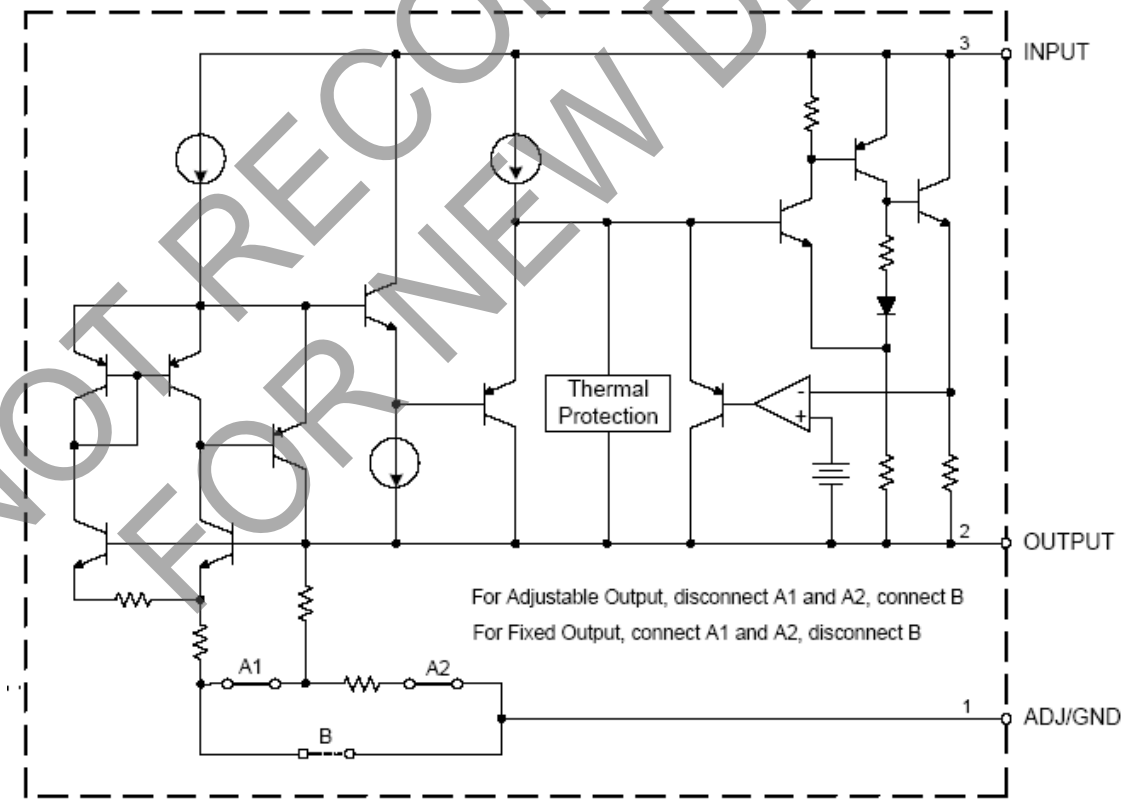
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Typical Applications Circuit



Functional Block Diagram



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Absolute Maximum Ratings (Note 3)

Parameter	Symbol	Value		Unit
Input Voltage	V_{IN}	20		V
Operating Junction Temperature	T_J	+150		°C
Storage Temperature	T_S	-65 to +150		°C
Lead Temperature (Soldering, 10sec)	T_{LEAD}	+260		°C
Thermal Resistance (No Heatsink, Note 4)	θ_{JA}	SOT223	120	°C/W
		SOT89	165	
		TO220-3	60	
		TO252-2 (3) TO252-2 (4) TO252-2 (5)	100	
		TO263	60	
ESD (Human Body Model)	ESD	2000		V
ESD (Machine Model)	ESD	250		V

Notes:
3. Stresses greater than those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "Recommended Operating Conditions" is not implied. Exposure to "Absolute Maximum Ratings" for extended periods may affect device reliability.
4. 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 operating ratings. The maximum allowable power dissipation is a function of the maximum junction temperature, $T_{J(max)}$, the junction-to-ambient thermal resistance, θ_{JA}, and the ambient temperature, T_A. The maximum allowable power dissipation at any ambient temperature is calculated using: $P_{D(max)} = (T_{J(max)}-T_A)/\theta_{JA}$. Exceeding the maximum allowable power dissipation will result in excessive die temperature, and the regulator will go into thermal shutdown.

Recommended Operating Conditions

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

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Electrical Characteristics

AZ1117-ADJ Electrical Characteristics (Operating Conditions: $V_{IN} \leq 10V$, $T_J = +25^oC$, unless otherwise specified.)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reference Voltage	V_{REF}	I_{OUT} = 10mA, V_{IN}-V_{OUT} = 2V 10mA ≤ I_{OUT} ≤ 1A, 1.4V ≤ V_{IN}-V_{OUT} ≤ 8V, P ≤ Maximum Power Dissipation	1.238 1.225	1.250 1.250	1.262 1.270	V
Line Regulation	ΔV_{OUT}	I_{OUT}=10mA, 1.5V ≤ V_{IN}-V_{OUT} ≤ 10V	—	0.035	0.2	%
Load Regulation	ΔV_{OUT}	V_{IN}-V_{OUT} = 2V, 10mA ≤ I_{OUT} ≤ 1A	—	0.2	0.4	%
Dropout Voltage	V_{DROP}	ΔV_{REF} = 1%, I_{OUT} = 0.1A	—	1.00	1.1	V
		ΔV_{REF} = 1%, I_{OUT} = 0.5A	—	1.08	1.18	V
		ΔV_{REF} = 1%, I_{OUT} = 1.0A	—	1.15	1.25	V
Current Limit	I_{LIMIT}	V_{IN}-V_{OUT} = 2V	1.25	1.35	—	A
Adjust Pin Current	I_{ADJ}	—	—	60	120	µA
Adjust Pin Current Change	ΔI_{ADJ}	1.4V ≤ V_{IN}-V_{OUT} ≤ 10V, 10mA ≤ I_{OUT} ≤ 1A	—	0.2	5	µA
Minimum Load Current (ADJ)	I_{LOAD}(MIN)	1.5V ≤ V_{IN}-V_{OUT} ≤ 10V (ADJ only)	—	1.7	5	mA
Quiescent Current	I_Q	V_{IN} = V_{OUT} + 1.25V	—	5	10	mA
Ripple Rejection	PSRR	f = 120Hz, C_{OUT} = 22µF Tantalum, V_{IN}-V_{OUT} = 3V, I_{OUT} = 1A	60	75	—	dB
Temperature Stability	—	—	—	0.5	—	%
Long-term Stability	—	T_A = +125°C, 1000hrs	—	0.3	—	%
RMS Output Noise (% of V_{OUT})	—	T_A = +25°C, 10Hz ≤ f ≤ 10kHz	—	0.003	—	%
Thermal Shutdown	—	Junction Temperature	—	+150	—	°C
Thermal Shutdown Hysteresis	—	—	—	+25	—	°C
Thermal Resistance	θ_{JC}	SOT223	—	25	—	°C/W
		SOT89	—	30	—	
		TO220-3	—	10	—	
		TO252-2 (3)/TO252-2 (4)/TO252-2 (5)	—	17	—	
		TO263	—	10	—	

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Electrical Characteristics (Cont.)

AZ1117-1.2 Electrical Characteristics (Operating Conditions: $V_{IN} \leq 10V$, $T_J = +25^oC$, unless otherwise specified.)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	I_{OUT} = 10mA, V_{IN} = 3.2V 10mA ≤ I_{OUT} ≤ 1A, 3.0V ≤ V_{IN} ≤ 10V	1.176 1.152	1.2 1.2	1.224 1.248	V
Line Regulation	ΔV_{OUT}	I_{OUT}=10mA, 1.5V ≤ V_{IN}-V_{OUT} ≤ 10V	—	1	6	mV
Load Regulation	ΔV_{OUT}	V_{IN}-V_{OUT} = 2V, 10mA ≤ I_{OUT} ≤ 1A	—	1	10	mV
Dropout Voltage	V_{DROP}	ΔV_{OUT} = 1%, I_{OUT} = 0.1A	—	1.00	1.1	V
		ΔV_{OUT} = 1%, I_{OUT} = 0.5A	—	1.08	1.18	V
		ΔV_{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	I_Q	V_{IN} = V_{OUT} + 1.25V	—	5	10	mA
Ripple Rejection	PSRR	f = 120Hz, C_{OUT} = 22µF Tantalum, V_{IN}-V_{OUT} = 3V, I_{OUT} = 1A	60	75	—	dB
Temperature Stability	—	—	—	0.5	—	%
Long-term Stability	—	T_A = +125ºC, 1000hrs	—	0.3	—	%
RMS Output Noise (% of V_{OUT})	—	T_A = +25ºC, 10Hz ≤ f ≤ 10kHz	—	0.003	—	%
Thermal Shutdown	—	Junction Temperature	—	+150	—	ºC
Thermal Shutdown Hysteresis	—	—	—	+25	—	ºC
Thermal Resistance	θ_{JC}	SOT223	—	25	—	ºC/W
		SOT89	—	30	—	
		TO220-3	—	10	—	
		TO252-2 (3)/TO252-2 (4)/TO252-2 (5)	—	17	—	
		TO263	—	10	—	

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Electrical Characteristics (Cont.)

AZ1117-1.5 Electrical Characteristics (Operating Conditions: $V_{IN} \leq 10V$, $T_J = +25^oC$, unless otherwise specified.)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	I_{OUT} = 10mA, V_{IN} = 3.5V 10mA ≤ I_{OUT} ≤ 1A, 3.0V ≤ V_{IN} ≤ 10V	1.485 1.470	1.5 1.5	1.515 1.530	V
Line Regulation	ΔV_{OUT}	I_{OUT}=10mA, 1.5V ≤ V_{IN}-V_{OUT} ≤ 10V	—	1	6	mV
Load Regulation	ΔV_{OUT}	V_{IN}-V_{OUT} = 2V, 10mA ≤ I_{OUT} ≤ 1A	—	1	10	mV
Dropout Voltage	V_{DROP}	ΔV_{OUT} = 1%, I_{OUT} = 0.1A	—	1.00	1.1	V
		ΔV_{OUT} = 1%, I_{OUT} = 0.5A	—	1.08	1.18	V
		ΔV_{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	I_Q	V_{IN} = V_{OUT} + 1.25V	—	5	10	mA
Ripple Rejection	PSRR	f = 120Hz, C_{OUT} = 22µF Tantalum, V_{IN}-V_{OUT} = 3V, I_{OUT} = 1A	60	75	—	dB
Temperature Stability	—	—	—	0.5	—	%
Long-term Stability	—	T_A = +125ºC, 1000hrs	—	0.3	—	%
RMS Output Noise (% of V_{OUT})	—	T_A = +25ºC, 10Hz ≤ f ≤ 10kHz	—	0.003	—	%
Thermal Shutdown	—	Junction Temperature	—	+150	—	ºC
Thermal Shutdown Hysteresis	—	—	—	+25	—	ºC
Thermal Resistance	θ_{JC}	SOT223	—	25	—	ºC/W
		SOT89	—	30	—	
		TO220-3	—	10	—	
		TO252-2 (3)/TO252-2 (4)/TO252-2 (5)	—	17	—	
		TO263	—	10	—	

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Electrical Characteristics (Cont.)

AZ1117-1.8 Electrical Characteristics (Operating Conditions: $V_{IN} \leq 10V$, $T_J = +25^oC$, unless otherwise specified.)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	I_{OUT} = 10mA, V_{IN} = 3.8V 10mA ≤ I_{OUT} ≤ 1A, 3.2V ≤ V_{IN} ≤ 10V	1.782 1.746	1.8 1.8	1.818 1.854	V
Line Regulation	ΔV_{OUT}	I_{OUT}=10mA, 1.5V ≤ V_{IN}-V_{OUT} ≤ 10V	—	1	6	mV
Load Regulation	ΔV_{OUT}	V_{IN}-V_{OUT} = 2V, 10mA ≤ I_{OUT} ≤ 1A	—	1	10	mV
Dropout Voltage	V_{DROP}	ΔV_{OUT} = 1%, I_{OUT} = 0.1A	—	1.00	1.1	V
		ΔV_{OUT} = 1%, I_{OUT} = 0.5A	—	1.08	1.18	V
		ΔV_{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	I_Q	V_{IN} = V_{OUT} + 1.25V	—	5	10	mA
Ripple Rejection	PSRR	f = 120Hz, C_{OUT} = 22µF Tantalum, V_{IN}-V_{OUT} = 3V, I_{OUT} = 1A	60	75	—	dB
Temperature Stability	—	—	—	0.5	—	%
Long-term Stability	—	T_A = +125°C, 1000hrs	—	0.3	—	%
RMS Output Noise (% of V_{OUT})	—	T_A = +25°C, 10Hz ≤ f ≤ 10kHz	—	0.003	—	%
Thermal Shutdown	—	Junction Temperature	—	+150	—	°C
Thermal Shutdown Hysteresis	—	—	—	+25	—	°C
Thermal Resistance	θ_{JC}	SOT223	—	25	—	°C/W
		SOT89	—	30	—	
		TO220-3	—	10	—	
		TO252-2 (3)/TO252-2 (4)/TO252-2 (5)	—	17	—	
		TO263	—	10	—	

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Electrical Characteristics (Cont.)

AZ1117-2.5 Electrical Characteristics (Operating Conditions: $V_{IN} \leq 10V$, $T_J = +25^oC$, unless otherwise specified.)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	I_{OUT} = 10mA, V_{IN} = 4.5V 10mA ≤ I_{OUT} ≤ 1A, 3.9V ≤ V_{IN} ≤ 10V	2.475 2.450	2.5 2.5	2.525 2.550	V
Line Regulation	ΔV_{OUT}	I_{OUT}=10mA, 1.5V ≤ V_{IN}-V_{OUT} ≤ 10V	—	1	6	mV
Load Regulation	ΔV_{OUT}	V_{IN}-V_{OUT} = 2V, 10mA ≤ I_{OUT} ≤ 1A	—	1	10	mV
Dropout Voltage	V_{DROP}	ΔV_{OUT} = 1%, I_{OUT} = 0.1A	—	1.00	1.1	V
		ΔV_{OUT} = 1%, I_{OUT} = 0.5A	—	1.08	1.18	V
		ΔV_{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	I_Q	V_{IN} = V_{OUT} + 1.25V	—	5	10	mA
Ripple Rejection	PSRR	f = 120Hz, C_{OUT} = 22µF Tantalum, V_{IN}-V_{OUT} = 3V, I_{OUT} = 1A	60	75	—	dB
Temperature Stability	—	—	—	0.5	—	%
Long-term Stability	—	T_A = +125ºC, 1000hrs	—	0.3	—	%
RMS Output Noise (% of V_{OUT})	—	T_A = +25ºC, 10Hz ≤ f ≤ 10kHz	—	0.003	—	%
Thermal Shutdown	—	Junction Temperature	—	+150	—	ºC
Thermal Shutdown Hysteresis	—	—	—	+25	—	ºC
Thermal Resistance	θ_{JC}	SOT223	—	25	—	ºC/W
		SOT89	—	30	—	
		TO220-3	—	10	—	
		TO252-2 (3)/TO252-2 (4)/TO252-2 (5)	—	17	—	
		TO263	—	10	—	

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Electrical Characteristics (Cont.)

AZ1117-2.85 Electrical Characteristics (Operating Conditions: $V_{IN} \leq 10V$, $T_J = +25^oC$, unless otherwise specified.)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	I_{OUT} = 10mA, V_{IN} = 4.85V 10mA ≤ I_{OUT} ≤ 1A, 4.25V ≤ V_{IN} ≤ 10V	2.822 2.793	2.85 2.85	2.878 2.907	V
Line Regulation	ΔV_{OUT}	I_{OUT}=10mA, 1.5V ≤ V_{IN}-V_{OUT} ≤ 10V	—	1	6	mV
Load Regulation	ΔV_{OUT}	V_{IN}-V_{OUT} = 2V, 10mA ≤ I_{OUT} ≤ 1A	—	1	10	mV
Dropout Voltage	V_{DROP}	ΔV_{REF} = 1%, I_{OUT} = 0.1A	—	1.00	1.1	V
		ΔV_{REF} = 1%, I_{OUT} = 0.5A	—	1.08	1.18	V
		ΔV_{REF} = 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	I_Q	V_{IN} = V_{OUT} + 1.25V	—	5	10	mA
Ripple Rejection	PSRR	f = 120Hz, C_{OUT} = 22µF Tantalum, V_{IN}-V_{OUT} = 3V, I_{OUT} = 1A	60	75	—	dB
Temperature Stability	—	—	—	0.5	—	%
Long-term Stability	—	T_A = +125ºC, 1000hrs	—	0.3	—	%
RMS Output Noise (% of V_{OUT})	—	T_A = +25ºC, 10Hz ≤ f ≤ 10kHz	—	0.003	—	%
Thermal Shutdown	—	Junction Temperature	—	+150	—	ºC
Thermal Shutdown Hysteresis	—	—	—	+25	—	ºC
Thermal Resistance	θ_{JC}	SOT223	—	25	—	ºC/W
		SOT89	—	30	—	
		TO220-3	—	10	—	
		TO252-2 (3)/TO252-2 (4)/TO252-2 (5)	—	17	—	
		TO263	—	10	—	

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Electrical Characteristics (Cont.)

AZ1117-3.3 Electrical Characteristics (Operating Conditions: $V_{IN} \leq 10V$, $T_J = +25^oC$, unless otherwise specified.)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	I_{OUT} = 10mA, V_{IN} = 5.0V 10mA ≤ I_{OUT} ≤ 1A, 4.75V ≤ V_{IN} ≤ 10V	3.267 3.235	3.3 3.3	3.333 3.365	V
Line Regulation	ΔV_{OUT}	I_{OUT}=10mA, 1.5V ≤ V_{IN}-V_{OUT} ≤ 10V	—	1	6	mV
Load Regulation	ΔV_{OUT}	V_{IN}-V_{OUT} = 2V, 10mA ≤ I_{OUT} ≤ 1A	—	1	10	mV
Dropout Voltage	V_{DROP}	ΔV_{OUT} = 1%, I_{OUT} = 0.1A	—	1.00	1.1	V
		ΔV_{OUT} = 1%, I_{OUT} = 0.5A	—	1.08	1.18	V
		ΔV_{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	I_Q	V_{IN} = V_{OUT} + 1.25V	—	5	10	mA
Ripple Rejection	PSRR	f = 120Hz, C_{OUT} = 22µF Tantalum, V_{IN}-V_{OUT} = 3V, I_{OUT} = 1A	60	75	—	dB
Temperature Stability	—	—	—	0.5	—	%
Long-term Stability	—	T_A = +125ºC, 1000hrs	—	0.3	—	%
RMS Output Noise (% of V_{OUT})	—	T_A = +25ºC, 10Hz ≤ f ≤ 10kHz	—	0.003	—	%
Thermal Shutdown	—	Junction Temperature	—	+150	—	ºC
Thermal Shutdown Hysteresis	—	—	—	+25	—	ºC
Thermal Resistance	θ_{JC}	SOT223	—	25	—	ºC/W
		SOT89	—	30	—	
		TO220-3	—	10	—	
		TO252-2 (3)/TO252-2 (4)/TO252-2 (5)	—	17	—	
		TO263	—	10	—	

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Electrical Characteristics (Cont.)

AZ1117-5.0 Electrical Characteristics (Operating Conditions: $V_{IN} \leq 10V$, $T_J = +25^oC$, unless otherwise specified.)

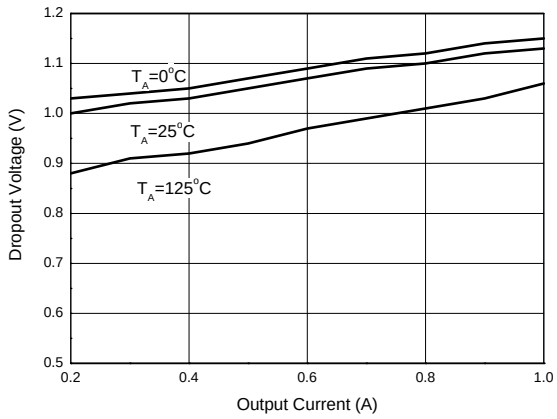
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Output Voltage	V_{OUT}	I_{OUT} = 10mA, V_{IN} = 7.0V 10mA ≤ I_{OUT} ≤ 1A, 6.5V ≤ V_{IN} ≤ 12V	4.950 4.900	5.0 5.0	5.050 5.100	V
Line Regulation	ΔV_{OUT}	I_{OUT}=10mA, 1.5V ≤ V_{IN}-V_{OUT} ≤ 10V	—	1	10	mV
Load Regulation	ΔV_{OUT}	V_{IN}-V_{OUT} = 2V, 10mA ≤ I_{OUT} ≤ 1A	—	1	15	mV
Dropout Voltage	V_{DROP}	ΔV_{OUT} = 1%, I_{OUT} = 0.1A	—	1.00	1.1	V
		ΔV_{OUT} = 1%, I_{OUT} = 0.5A	—	1.08	1.18	V
		ΔV_{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	I_Q	V_{IN} = V_{OUT} + 1.25V	—	5	10	mA
Ripple Rejection	PSRR	f = 120Hz, C_{OUT} = 22µF Tantalum, V_{IN}-V_{OUT} = 3V, I_{OUT} = 1A	60	75	—	dB
Temperature Stability	—	—	—	0.5	—	%
Long-term Stability	—	T_A = +125ºC, 1000hrs	—	0.3	—	%
RMS Output Noise (% of V_{OUT})	—	T_A = +25ºC, 10Hz ≤ f ≤ 10kHz	—	0.003	—	%
Thermal Shutdown	—	Junction Temperature	—	+150	—	ºC
Thermal Shutdown Hysteresis	—	—	—	+25	—	ºC
Thermal Resistance	θ_{JC}	SOT223	—	25	—	ºC/W
		SOT89	—	30	—	
		TO220-3	—	10	—	
		TO252-2 (3)/TO252-2 (4)/TO252-2 (5)	—	17	—	
		TO263	—	10	—	

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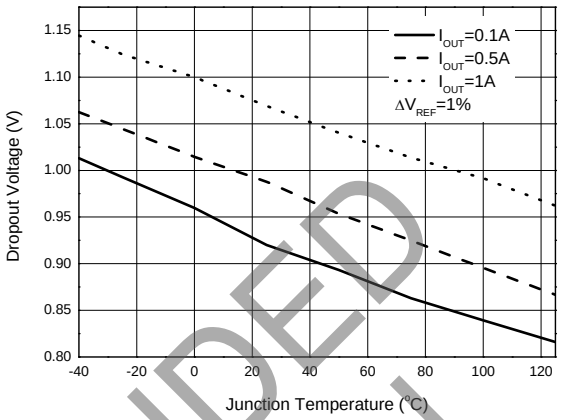
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Performance Characteristics

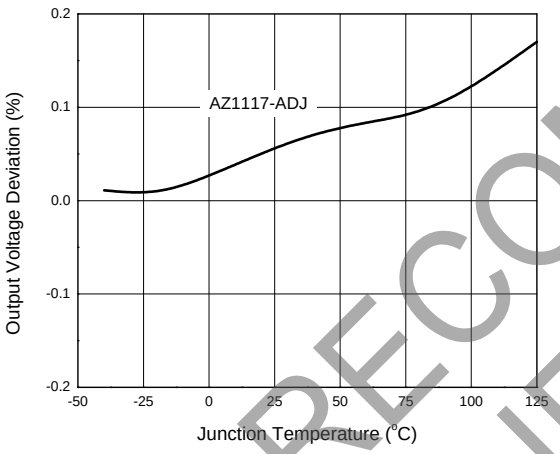
Dropout Voltage vs. Output Current



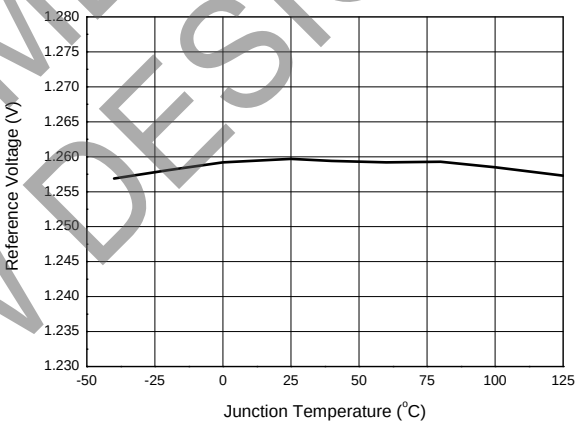
Dropout Voltage vs. Junction Temperature



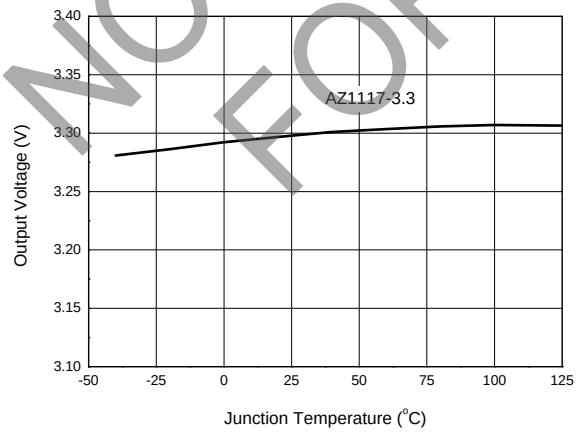
Load Regulation vs. Junction Temperature



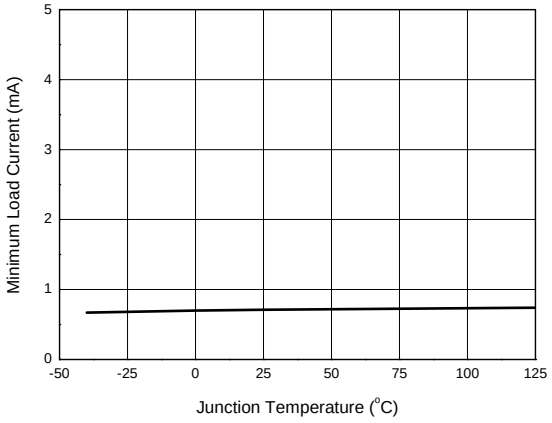
Reference Voltage vs. Junction Temperature



Output Voltage vs. Junction Temperature



Minimum Load Current vs. Junction Temperature

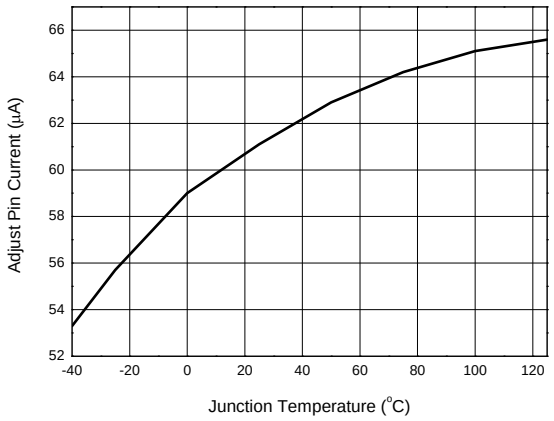


NOT RECOMMENDED FOR NEW DESIGN

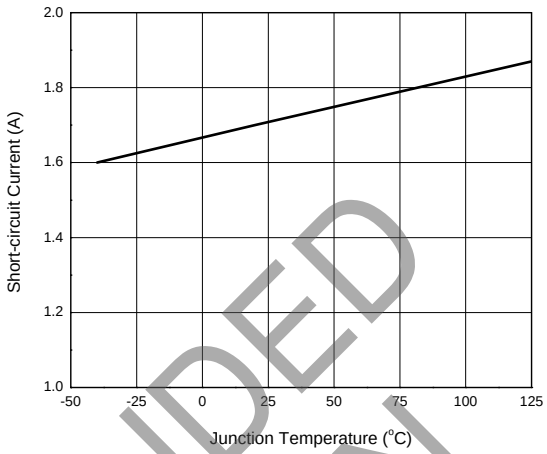
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Performance Characteristics (Cont.)

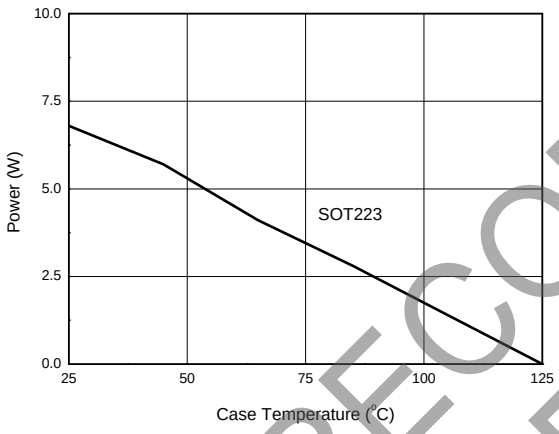
Adjust Pin Current vs. Junction Temperature



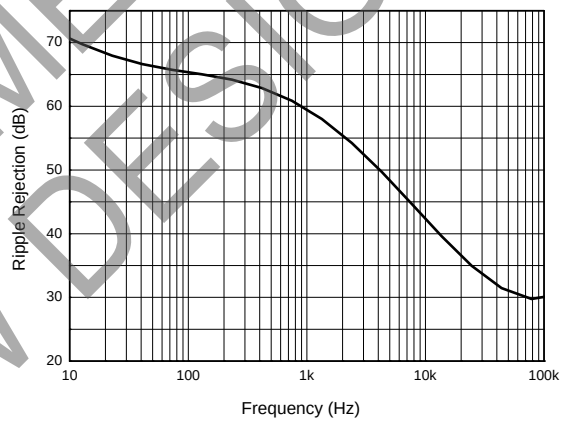
Short-circuit Current vs. Junction Temperature



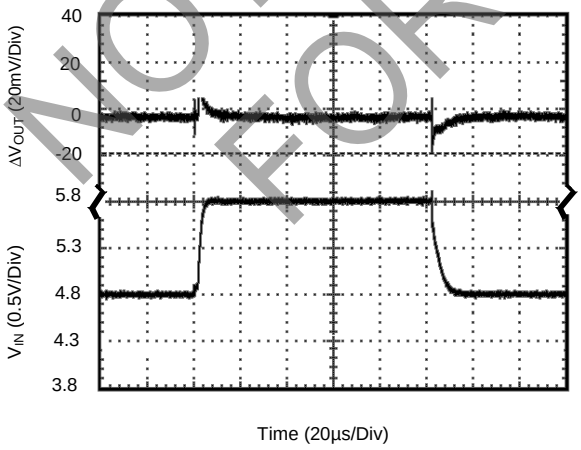
Maximum Power Dissipation



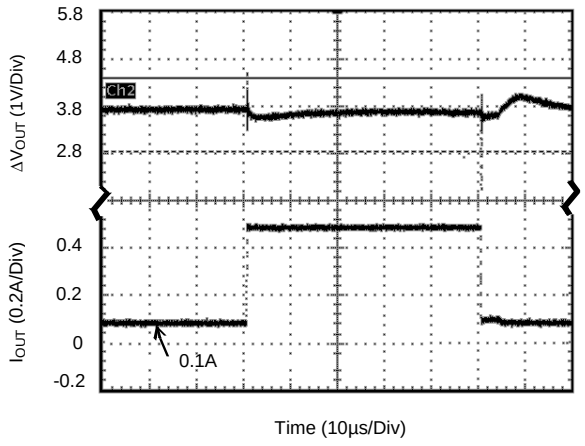
Ripple Rejection vs. Frequency



Line Transient Response
(Conditions: V_{IN} = 4.8 to 5.8V, V_{OUT} = 3.33V, I_{OUT} = 0.1A, C_{IN} = 1μF, C_{OUT} = 10μF)



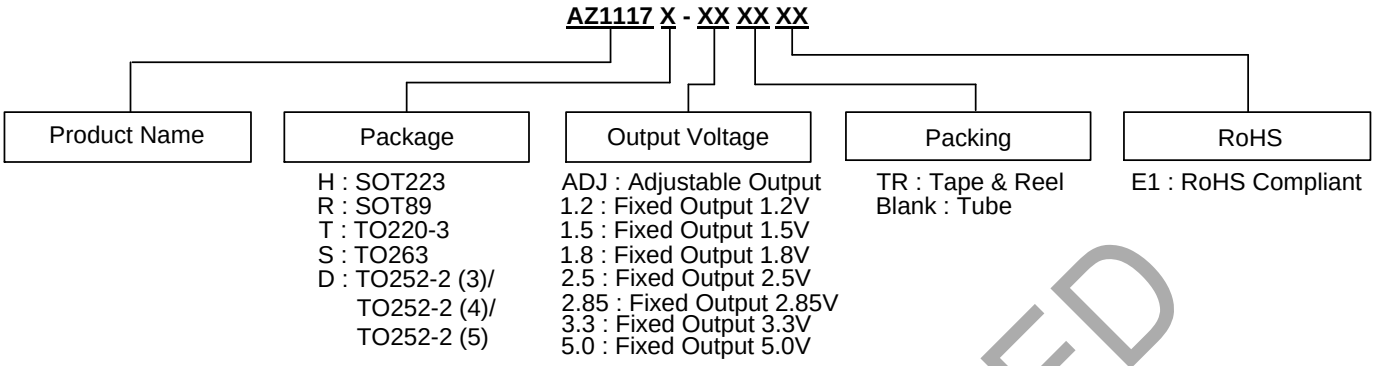
Load Transient Response
(Conditions: V_{IN} = 4.8V, V_{OUT} = 3.33V, I_{OUT} = 0.1 to 0.5A, C_{IN} = C_{OUT} = 10μF)



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Ordering Information



Package	Temperature Range	Part Number	Marking ID	Packing
SOT223	-40 to +125°C	AZ1117H-ADJTRE1	EH11A	4000/Tape & Reel
	-40 to +125°C	AZ1117H-1.2TRE1	EH18A	4000/Tape & Reel
	-40 to +125°C	AZ1117H-1.5TRE1	EH12A	4000/Tape & Reel
	-40 to +125°C	AZ1117H-1.8TRE1	EH13A	4000/Tape & Reel
	-40 to +125°C	AZ1117H-2.5TRE1	EH14A	4000/Tape & Reel
	-40 to +125°C	AZ1117H-2.85TRE1	EH15A	4000/Tape & Reel
	-40 to +125°C	AZ1117H-3.3TRE1	EH16A	4000/Tape & Reel
	-40 to +125°C	AZ1117H-5.0TRE1	EH17A	4000/Tape & Reel
SOT89	-40 to +125°C	AZ1117R-ADJTRE1	E17A	1000/Tape & Reel
	-40 to +125°C	AZ1117R-1.2TRE1	E17G	1000/Tape & Reel
	-40 to +125°C	AZ1117R-1.5TRE1	E17B	1000/Tape & Reel
	-40 to +125°C	AZ1117R-1.8TRE1	E17C	1000/Tape & Reel
	-40 to +125°C	AZ1117R-2.5TRE1	E17D	1000/Tape & Reel
	-40 to +125°C	AZ1117R-2.85TRE1	E17H	1000/Tape & Reel
	-40 to +125°C	AZ1117R-3.3TRE1	E17E	1000/Tape & Reel
	-40 to +125°C	AZ1117R-5.0TRE1	E17F	1000/Tape & Reel
TO220-3	-40 to +125°C	AZ1117T-ADJE1	AZ1117T-ADJE1	50/Tube
	-40 to +125°C	AZ1117T-1.2E1	AZ1117T-1.2E1	50/Tube
	-40 to +125°C	AZ1117T-1.5E1	AZ1117T-1.5E1	50/Tube
	-40 to +125°C	AZ1117T-1.8E1	AZ1117T-1.8E1	50/Tube
	-40 to +125°C	AZ1117T-2.5E1	AZ1117T-2.5E1	50/Tube
	-40 to +125°C	AZ1117T-2.85E1	AZ1117T-2.85E1	50/Tube
	-40 to +125°C	AZ1117T-3.3E1	AZ1117T-3.3E1	50/Tube
	-40 to +125°C	AZ1117T-5.0E1	AZ1117T-5.0E1	50/Tube

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Ordering Information (Cont.)

Package	Temperature Range	Part Number	Marking ID	Packing
TO252-2 (3)/(4)/(5)	-40 to +125°C	AZ1117D-ADJTRE1	AZ1117D-ADJE1	2500/Tape & Reel
	-40 to +125°C	AZ1117D-1.2TRE1	AZ1117D-1.2E1	2500/Tape & Reel
	-40 to +125°C	AZ1117D-1.5TRE1	AZ1117D-1.5E1	2500/Tape & Reel
	-40 to +125°C	AZ1117D-1.8TRE1	AZ1117D-1.8E1	2500/Tape & Reel
	-40 to +125°C	AZ1117D-2.5TRE1	AZ1117D-2.5E1	2500/Tape & Reel
	-40 to +125°C	AZ1117D-2.85TRE1	AZ1117D-2.85E1	2500/Tape & Reel
	-40 to +125°C	AZ1117D-3.3TRE1	AZ1117D-3.3E1	2500/Tape & Reel
	-40 to +125°C	AZ1117D-5.0TRE1	AZ1117D-5.0E1	2500/Tape & Reel
TO263	-40 to +125°C	AZ1117S-ADJTRE1	AZ1117S-ADJE1	800/Tape & Reel
	-40 to +125°C	AZ1117S-1.2TRE1	AZ1117S-1.2E1	800/Tape & Reel
	-40 to +125°C	AZ1117S-1.5TRE1	AZ1117S-1.5E1	800/Tape & Reel
	-40 to +125°C	AZ1117S-1.8TRE1	AZ1117S-1.8E1	800/Tape & Reel
	-40 to +125°C	AZ1117S-2.5TRE1	AZ1117S-2.5E1	800/Tape & Reel
	-40 to +125°C	AZ1117S-2.85TRE1	AZ1117S-2.85E1	800/Tape & Reel
	-40 to +125°C	AZ1117S-3.3TRE1	AZ1117S-3.3E1	800/Tape & Reel
	-40 to +125°C	AZ1117S-5.0TRE1	AZ1117S-5.0E1	800/Tape & Reel

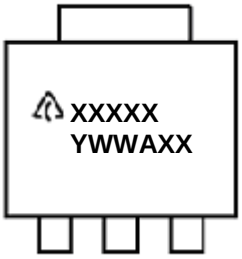
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Marking Information

(1) SOT223 Series

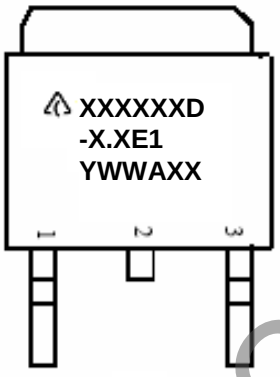
(Top View)



First Line: Logo and Marking ID
(See Ordering Information)
Second Line: Date Code
Y: Year
WW: Work Week of Molding
A: Assembly House Code
XX: 7th and 8th Digits of Batch Number

(2) TO252-2 Series

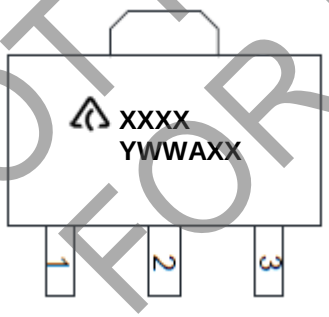
(Top View)



First and Second Lines: Logo and Marking ID
(See Ordering Information)
Third Line: Date Code
Y: Year
WW: Work Week of Molding
A: Assembly House Code
XX: 7th and 8th Digits of Batch Number

(3) SOT89

(Top View)



First Line: Logo and Marking ID
(See Ordering Information)
Second Line: Date Code
Y: Year
WW: Work Week of Molding
A: Assembly House Code
XX: 7th and 8th Digits of Batch Number

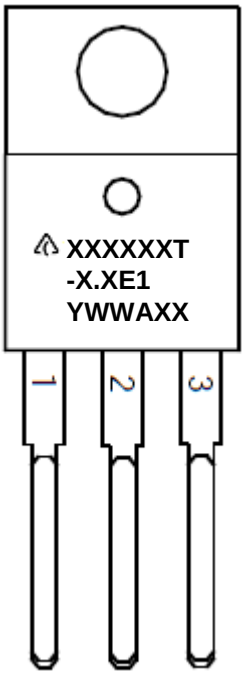
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Marking Information (Cont.)

(4) TO220-3

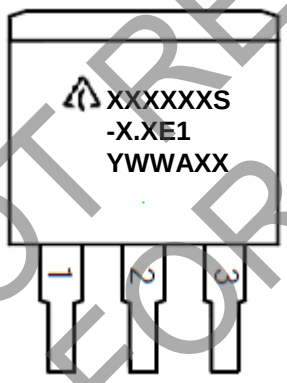
(Top View)



First and Second Lines: Logo and Marking ID
(See Ordering Information)
Third Line: Date Code
Y: Year
WW: Work Week of Molding
A: Assembly House Code
XX: 7th and 8th Digits of Batch Number

(5) TO263

(Top View)



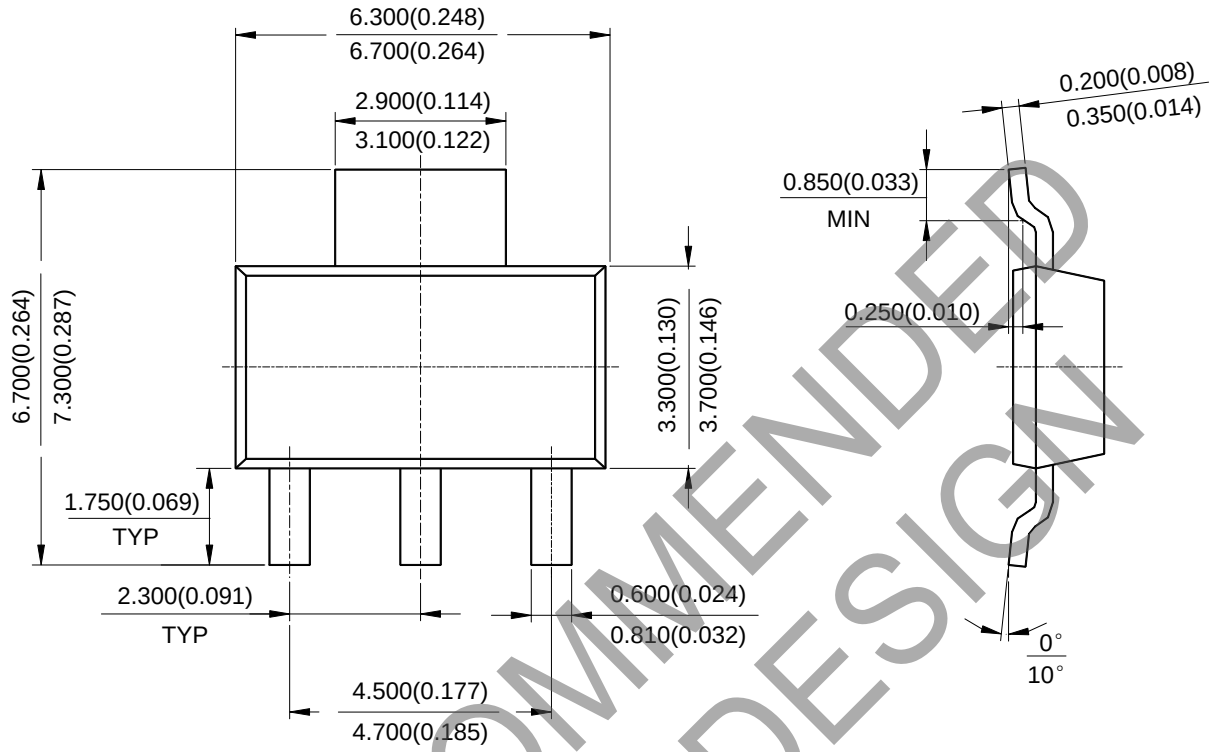
First and Second Lines: Logo and Marking ID
(See Ordering Information)
Third Line: Date Code
Y: Year
WW: Work Week of Molding
A: Assembly House Code
XX: 7th and 8th Digits of Batch Number

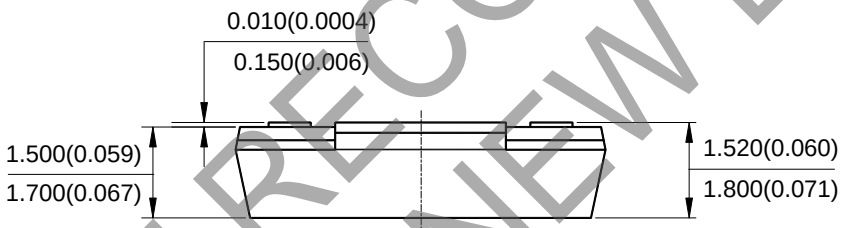
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Package Outline Dimensions (All dimensions in mm(inch).)

(1) Package Type: SOT223



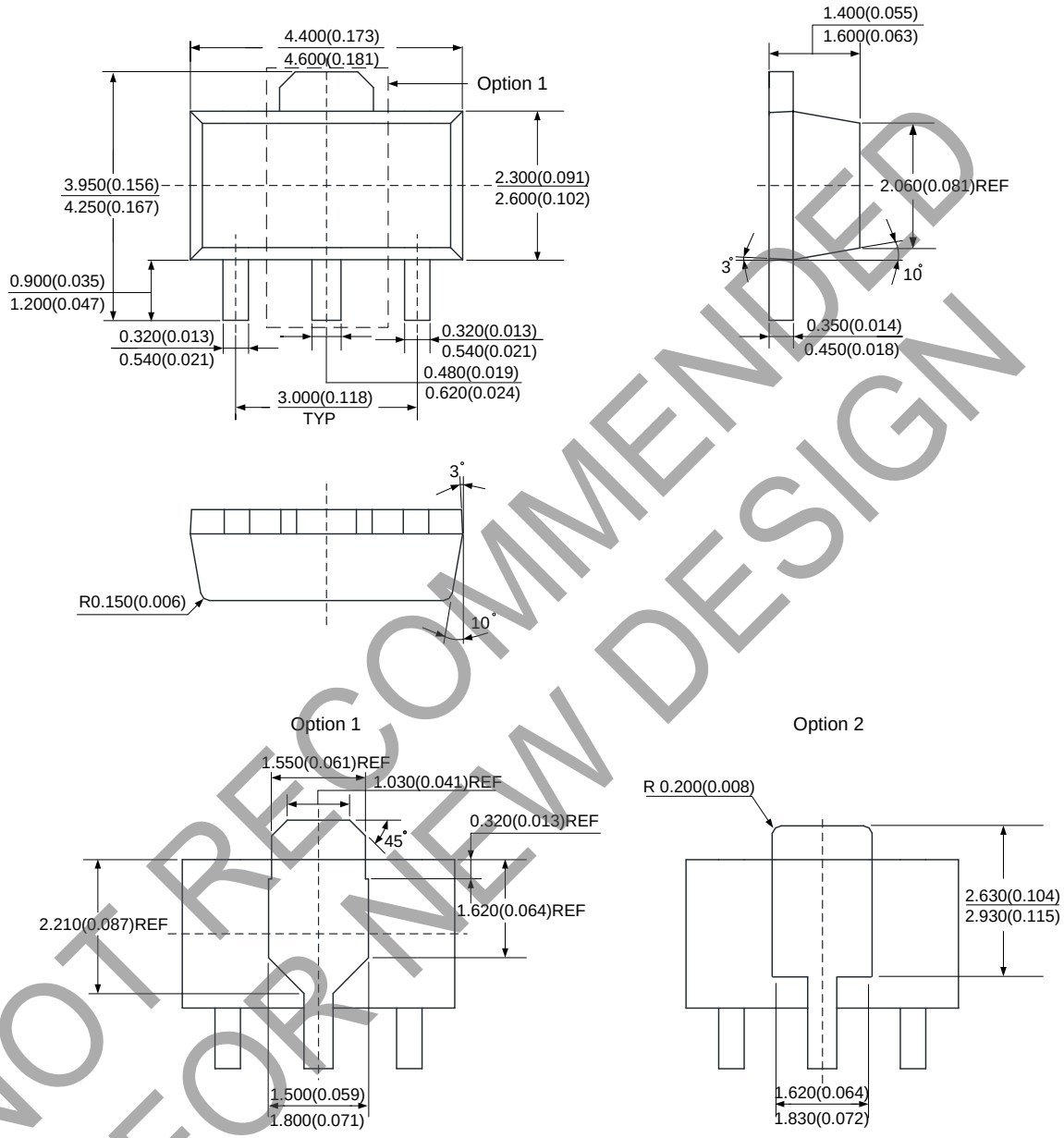


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Package Outline Dimensions (Cont. All dimensions in mm(inch).)

(2) Package Type: SOT89

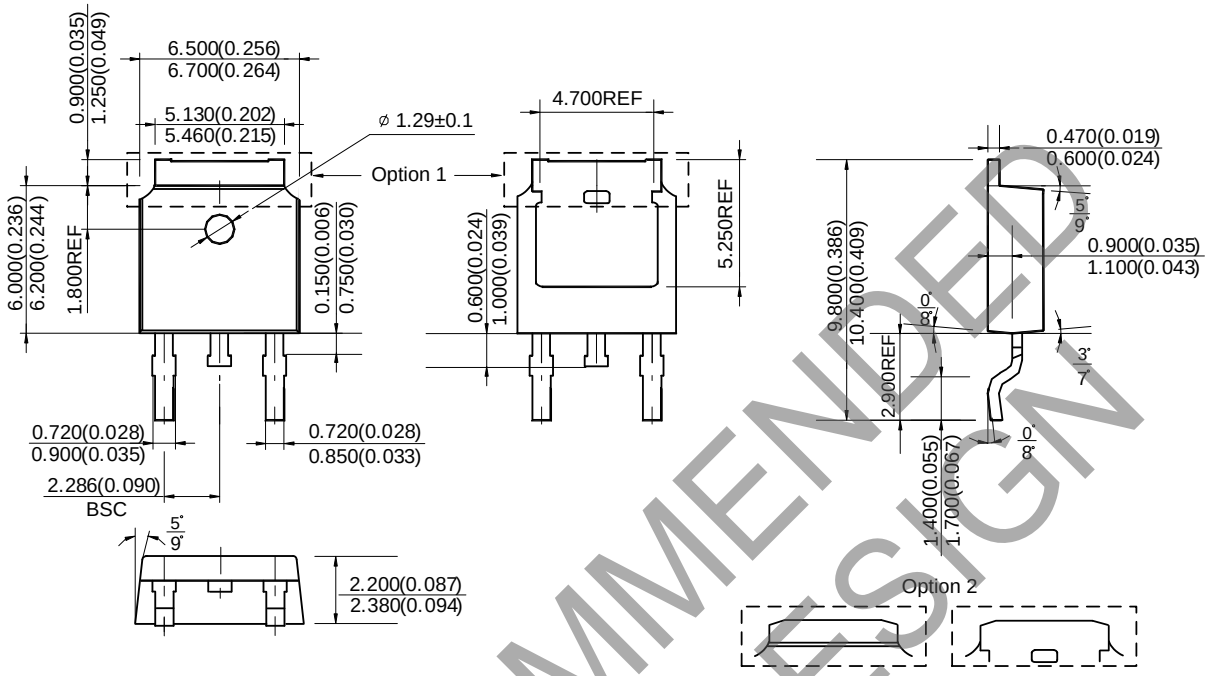


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Package Outline Dimensions (Cont. All dimensions in mm(inch).)

(3) Package Type: TO252-2 (3)

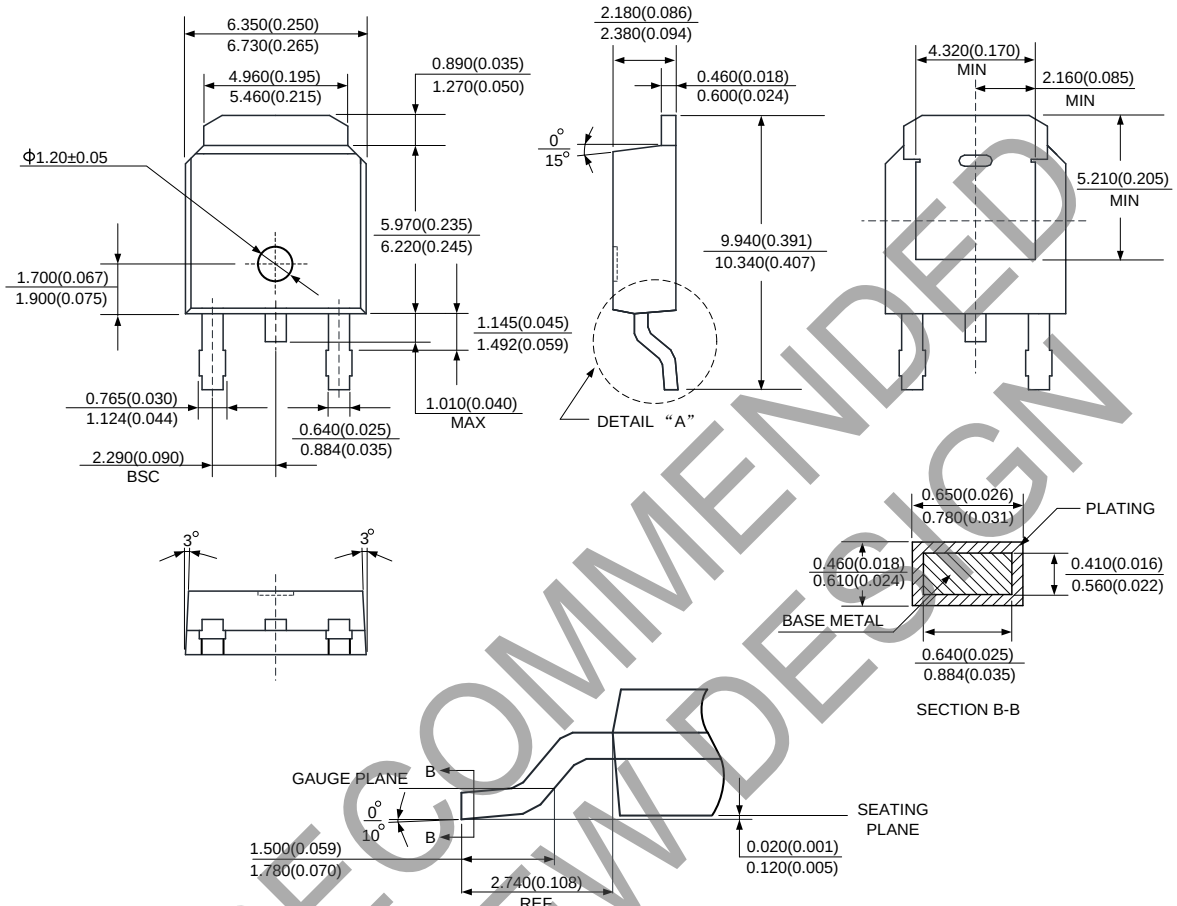


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Package Outline Dimensions (Cont. All dimensions in mm(inch).)

(4) Package Type: TO252-2 (4)

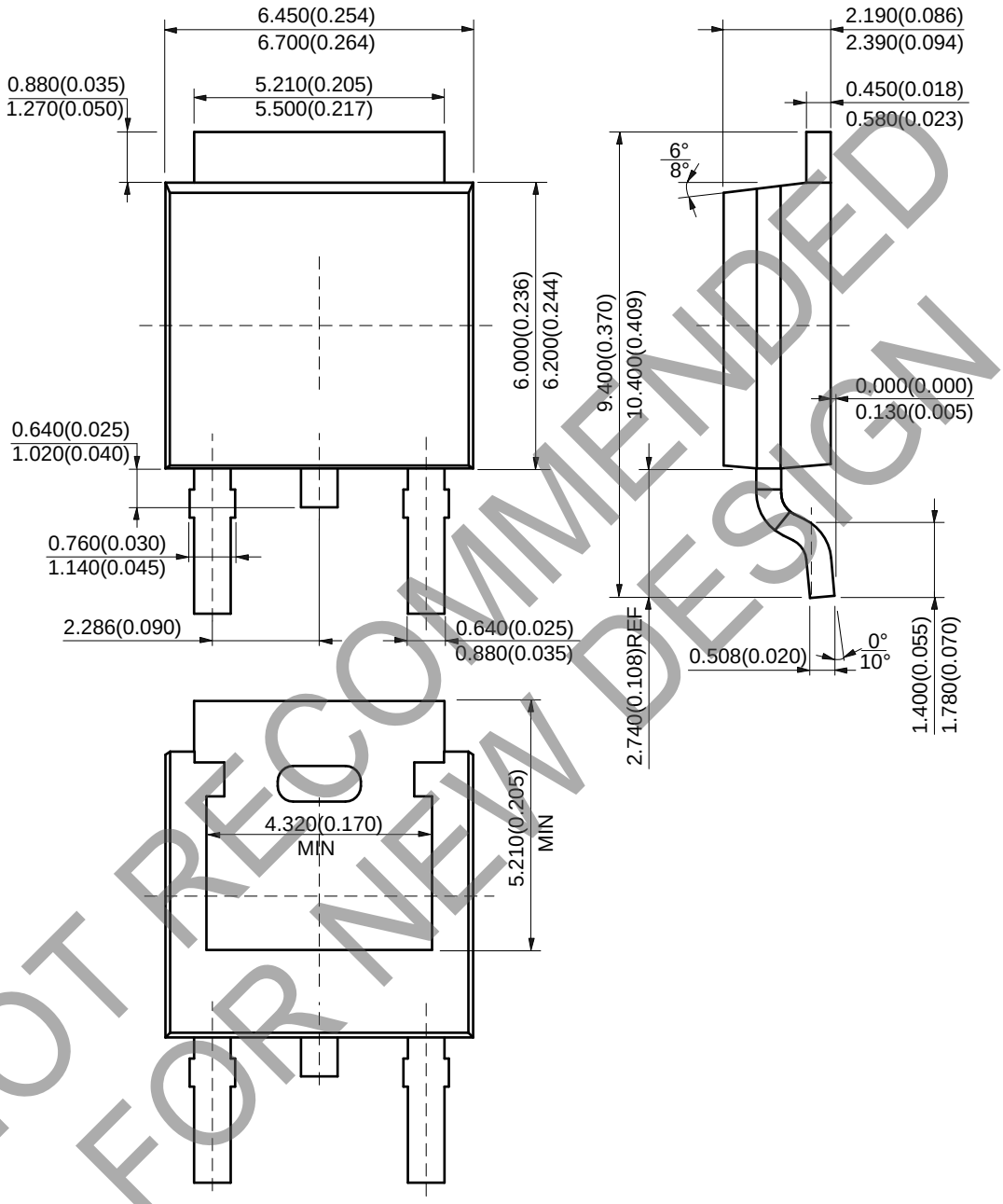


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Package Outline Dimensions (Cont. All dimensions in mm(inch).)

(5) Package Type: TO252-2 (5)

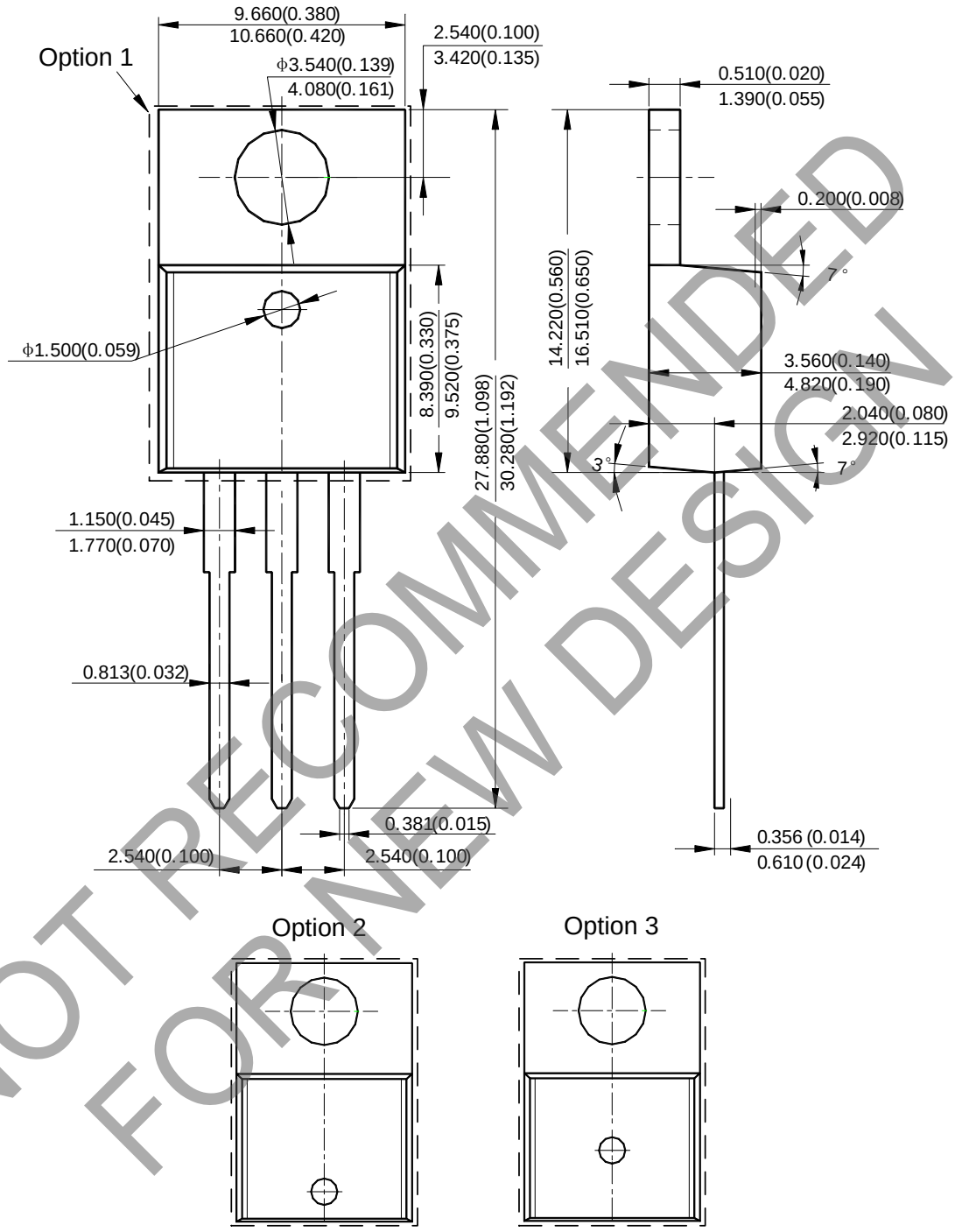


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Package Outline Dimensions (Cont. All dimensions in mm(inch).)

(6) Package Type: TO220-3

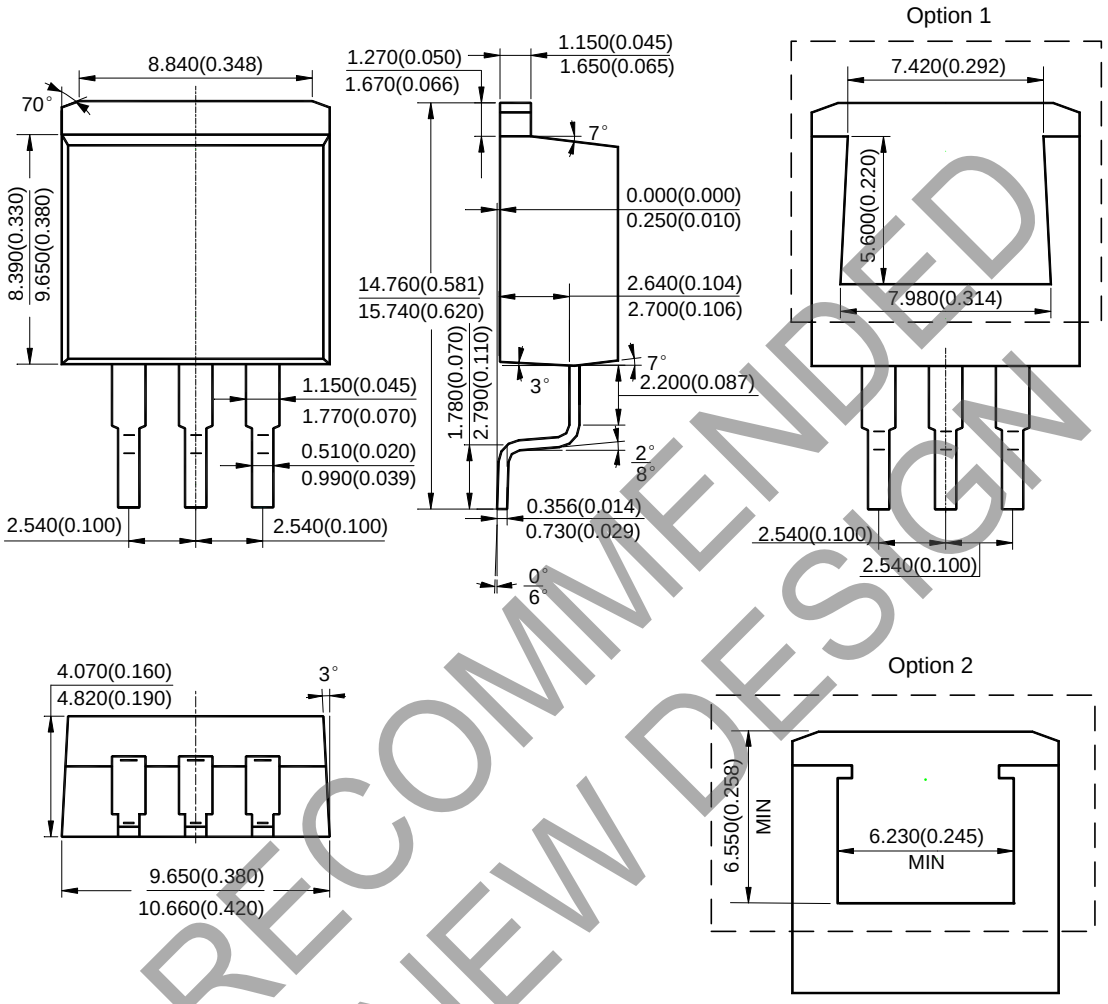


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Package Outline Dimensions (Cont. All dimensions in mm(inch).)

(7) Package Type: TO263

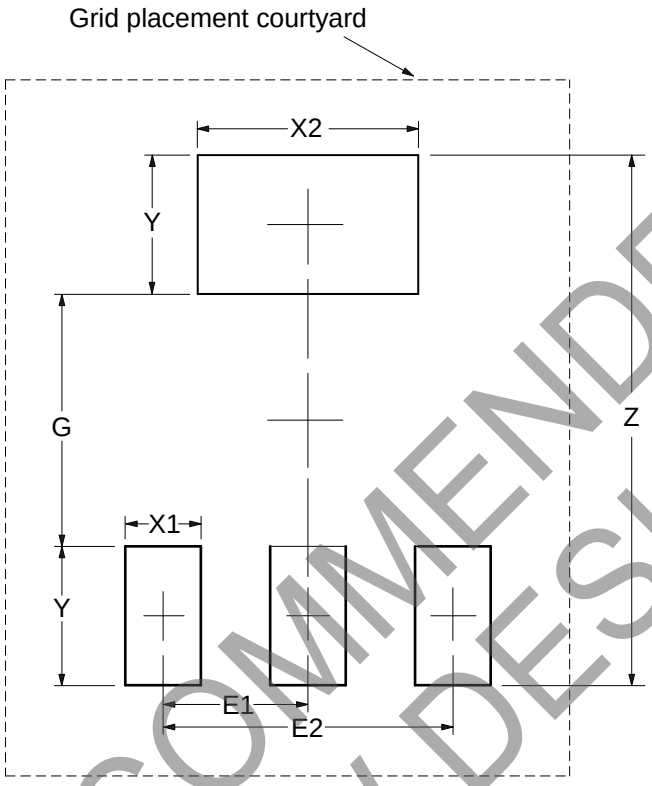


NOT RECOMMENDED FOR NEW DESIGN

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Suggested Pad Layout

(1) Package Type: SOT223



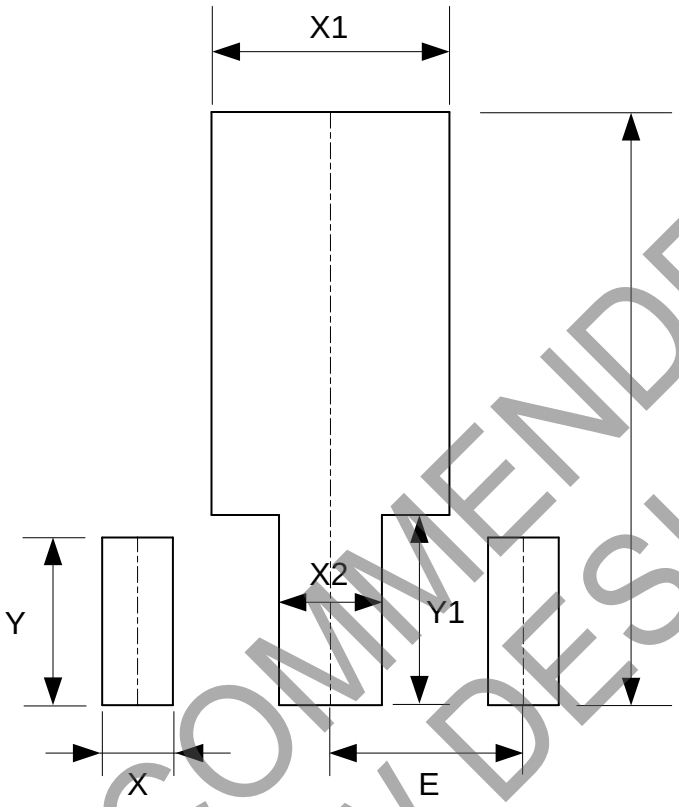
Dimensions	Z (mm)/(inch)	G (mm)/(inch)	X1 (mm)/(inch)	X2 (mm)/(inch)	Y (mm)/(inch)	E1 (mm)/(inch)	E2 (mm)/(inch)
Value	8.400/0.331	4.000/0.157	1.200/0.047	3.500/0.138	2.200/0.087	2.300/0.091	4.600/0.181

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Suggested Pad Layout (Cont.)

(2) Package Type: SOT89



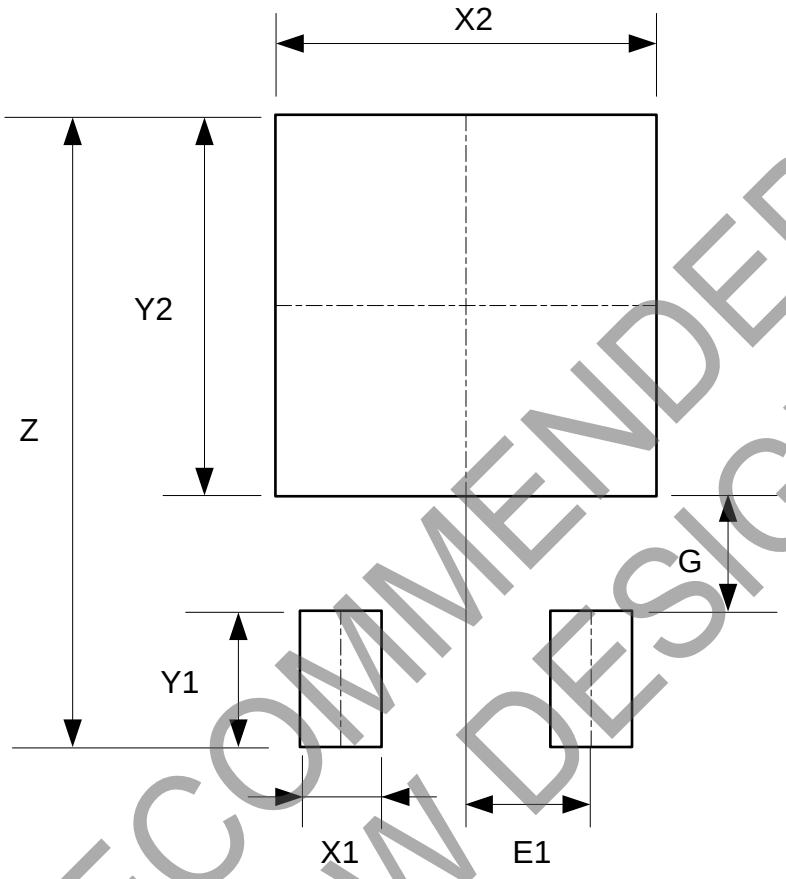
Dimensions	Z (mm)/(inch)	X (mm)/(inch)	X1 (mm)/(inch)	X2 (mm)/(inch)	Y (mm)/(inch)	Y1 (mm)/(inch)	E (mm)/(inch)
Value	4.600/0.181	0.550/0.022	1.850/0.073	0.800/0.031	1.300/0.051	1.475/0.058	1.500/0.059

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Suggested Pad Layout (Cont.)

(3) Package Type: TO252-2 (3)



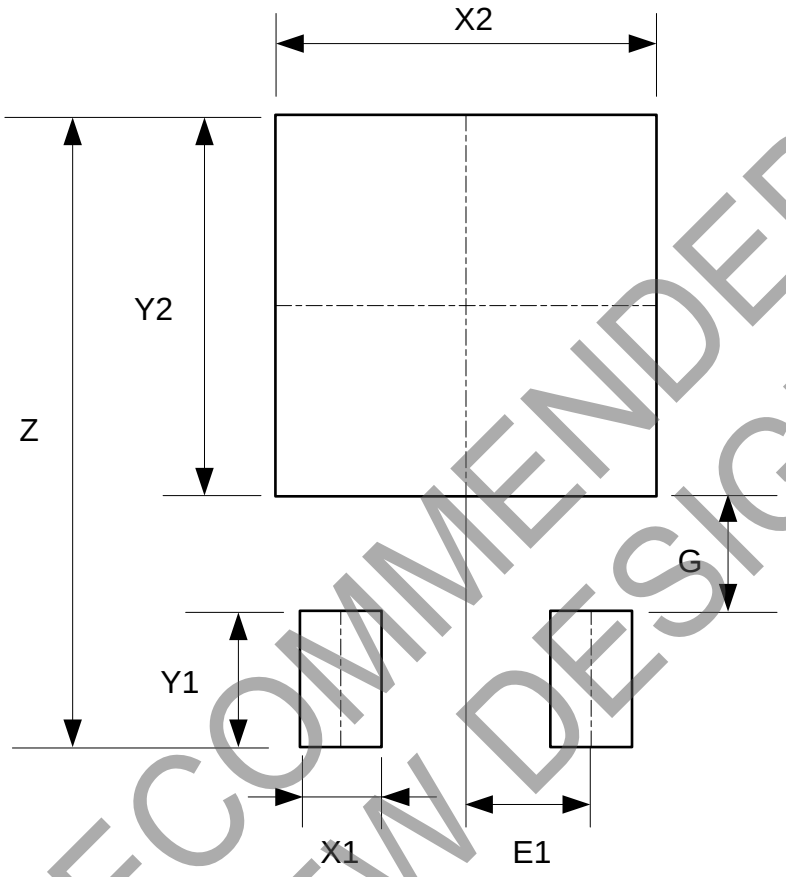
Dimensions	Z (mm)/(inch)	X1 (mm)/(inch)	X2=Y2 (mm)/(inch)	Y1 (mm)/(inch)	G (mm)/(inch)	E1 (mm)/(inch)
Value	11.600/0.457	1.500/0.059	7.000/0.276	2.500/0.098	2.100/0.083	2.300/0.091

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Suggested Pad Layout (Cont.)

(4) Package Type: TO252-2 (4)



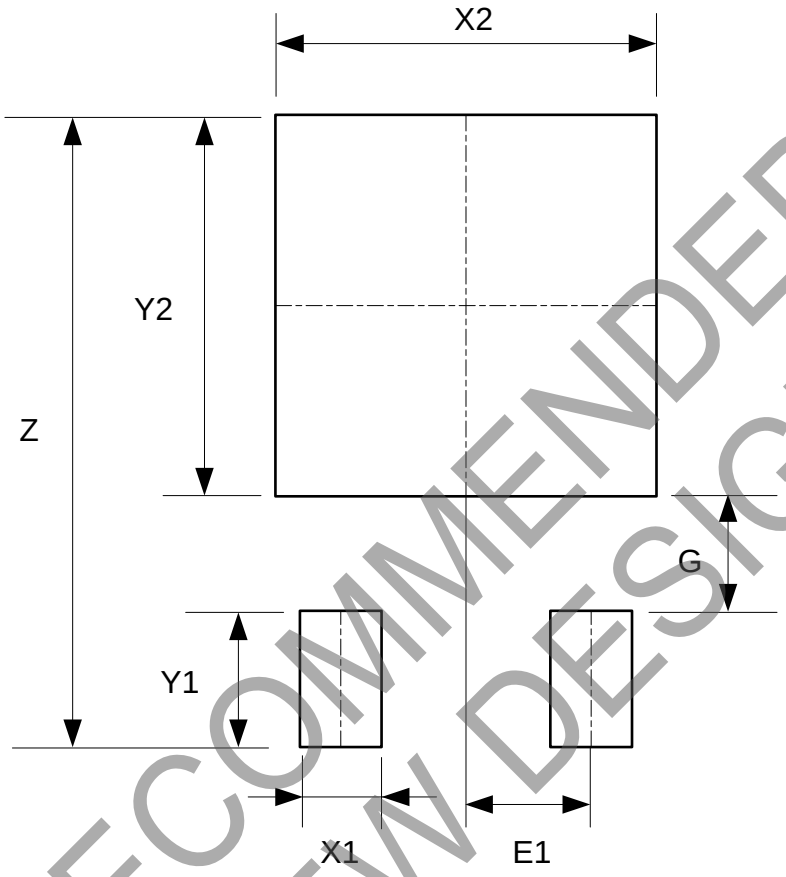
Dimensions	Z (mm)/(inch)	X1 (mm)/(inch)	X2=Y2 (mm)/(inch)	Y1 (mm)/(inch)	G (mm)/(inch)	E1 (mm)/(inch)
Value	11.600/0.457	1.500/0.059	7.000/0.276	2.500/0.098	2.100/0.083	2.300/0.091

NOT RECOMMENDED FOR NEW DESIGN

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Suggested Pad Layout (Cont.)

(5) Package Type: TO252-2 (5)



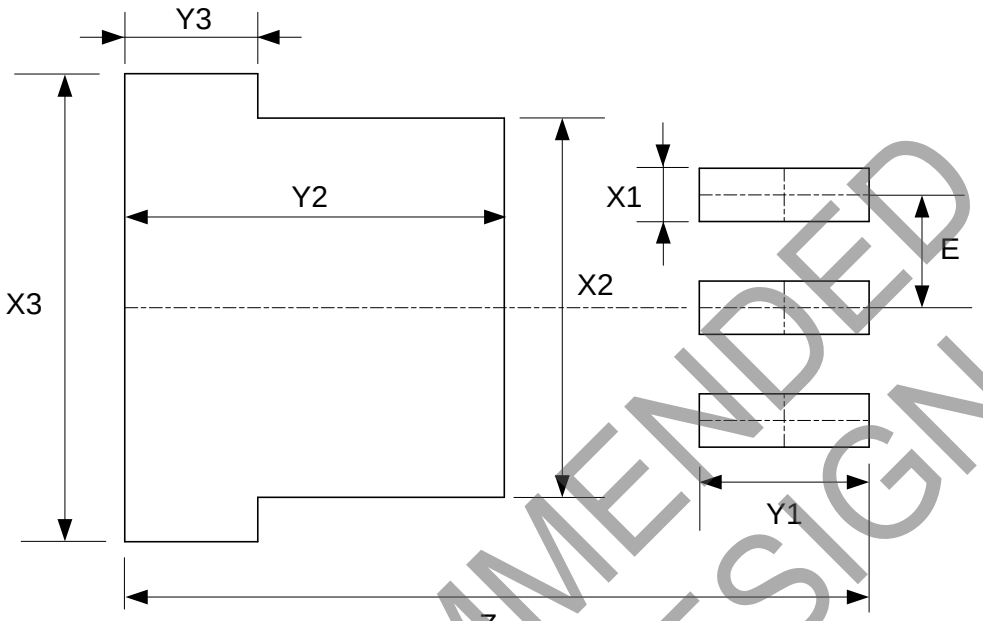
Dimensions	Z (mm)/(inch)	X1 (mm)/(inch)	X2=Y2 (mm)/(inch)	Y1 (mm)/(inch)	G (mm)/(inch)	E1 (mm)/(inch)
Value	11.600/0.457	1.500/0.059	7.000/0.276	2.500/0.098	2.100/0.083	2.300/0.091

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Suggested Pad Layout (Cont.)

(6) Package Type: TO263



Dimensions	Z (mm)/(inch)	X1 (mm)/(inch)	X2 (mm)/(inch)	X3 (mm)/(inch)
Value	16.760/0.660	1.200/0.047	8.540/0.336	10.540/0.415
Dimensions	Y1 (mm)/(inch)	Y2 (mm)/(inch)	Y3 (mm)/(inch)	E (mm)/(inch)
Value	3.830/0.151	8.560/0.337	3.000/0.118	2.540/0.100

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Üretici parça numarasını yazın; stok ve fiyatı hemen görün.

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