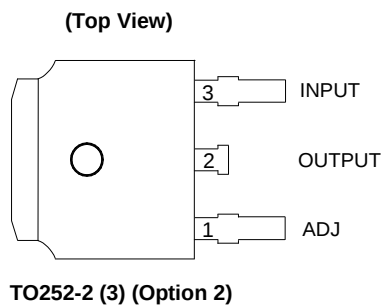
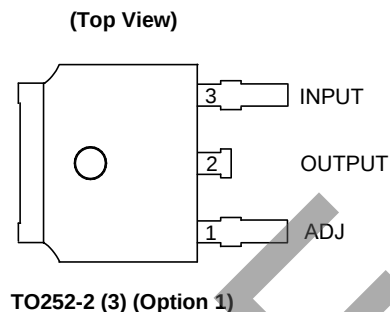
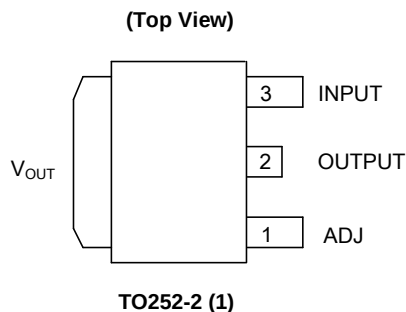
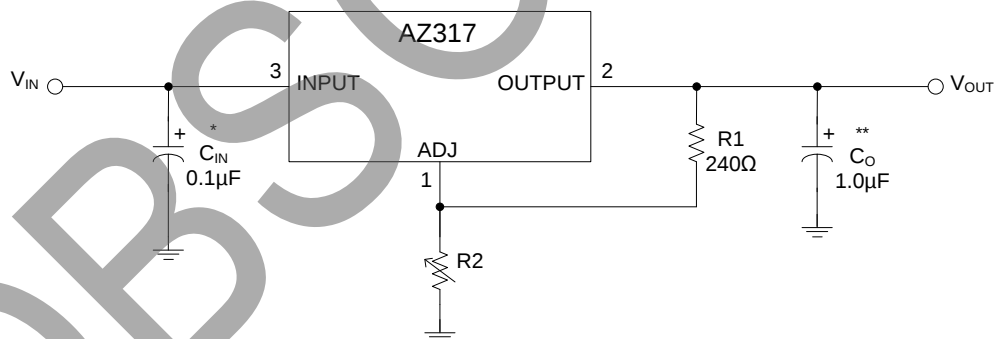


Pin Assignments (Cont.)



Typical Applications Circuit



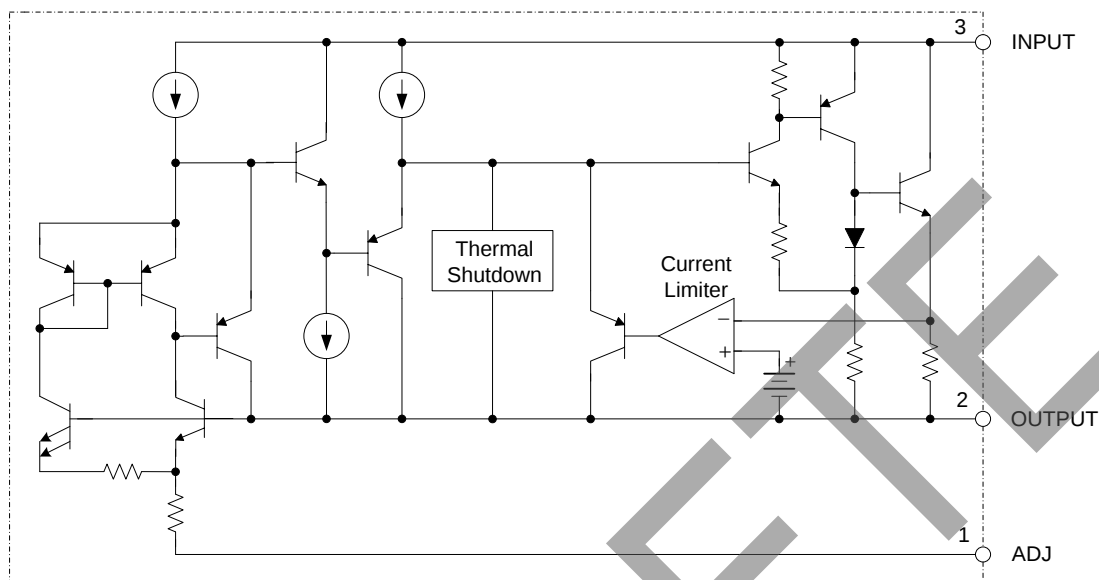
* = C_{IN} is required if the regulator is located near power supply filter.

**= C_O is needed for stability and it improves transient response.

$$V_{OUT} = V_{REF} \times (1 + R_2/R_1) + I_{ADJ} \times R_2$$

Since I_{ADJ} is controlled to less than 100µA, the error associated with this term is negligible in most applications.

Functional Block Diagram



Absolute Maximum Ratings (Note 4)

Symbol	Parameter	Value	Unit
V_{IN}	Input Voltage	20	V
T_J	Maximum Junction Temperature	+150	°C
T_S	Storage Temperature	-65 to +150	°C
T_{LEAD}	Lead Temperature (Soldering, 10sec)	+300	°C
ESD	ESD (Human Body Model)	4000	V

Note 4: 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.

Recommended Operating Conditions

Symbol	Parameter	Min	Max	Unit
V_{IN}	Input Voltage	$V_{OUT}+2$	15	V
T_J	Operating Junction Temperature Range	0	+125	°C

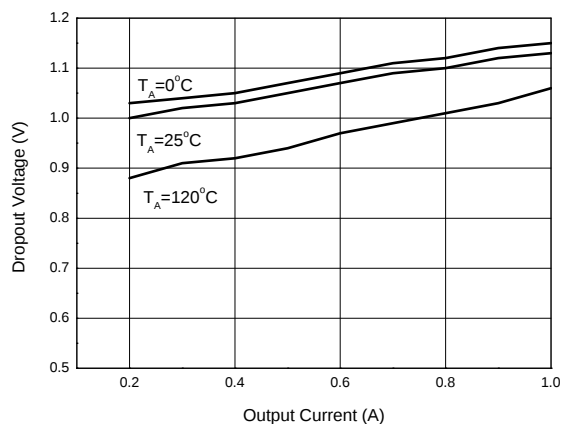
Electrical Characteristics (Typicals and limits apply for $T_J = +25^{\circ}\text{C}$, $P \leq$ Maximum Power Dissipation unless otherwise specified. Note 5)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{REF}	Reference Voltage	$10\text{mA} \leq I_{OUT} \leq 1\text{A}$, $3\text{V} \leq (V_{IN}-V_{OUT}) \leq 10\text{V}$	1.20	1.25	1.30	V
S_V	Line Regulation	$I_{OUT} \leq 20\text{mA}$, $3\text{V} \leq V_{IN}-V_{OUT} \leq 10\text{V}$	—	0.01	0.04	%/V
S_i	Load Regulation	$V_{IN}-V_{OUT} = 2\text{V}$, $10\text{mA} \leq I_{OUT} \leq 1\text{A}$	—	0.2	0.4	%
—	Thermal Regulation	20ms Pulse	—	0.04	0.07	%/W
ΔV	Dropout Voltage	$I_{OUT} = 1\text{A}$	—	1.2	1.3	V
I_{LIMIT}	Current Limit	$(V_{IN}-V_{OUT}) = 2\text{V}$	1.2	1.5	1.8	A
—	Adjust Pin Current	—	—	50	100	μA
—	Adjust Pin Current Change	$1.4\text{V} \leq (V_{IN}-V_{OUT}) \leq 10\text{V}$, $10\text{mA} \leq I_{OUT} \leq 1\text{A}$	—	0.2	5	μA
—	Minimum Load Current	$3\text{V} \leq (V_{IN}-V_{OUT}) \leq 15\text{V}$	—	3.5	10	mA
—	Ripple Rejection	$f = 120\text{Hz}$, $C_{OUT} = 1\mu\text{F}$ Tantalum, $(V_{IN}-V_{OUT}) = 3\text{V}$, $I_{OUT} = 1\text{A}$	60	75	—	dB
—	Temperature Stability	—	—	1	—	%
—	Long-Term Stability	$T_A = +125^{\circ}\text{C}$, 1000hrs	—	0.3	—	%
—	RMS Output Noise (% of V_{OUT})	$T_A = +25^{\circ}\text{C}$, $10\text{Hz} \leq f \leq 10\text{kHz}$	—	0.003	—	%
—	Thermal Resistance (Junction to Case)	SOT223	—	15	—	$^{\circ}\text{C/W}$
		TO252-2 (1)/TO252-2 (3)	—	10	—	
		TO220-3	—	4.5	—	
—	Thermal Shutdown	Junction Temperature	—	+150	—	$^{\circ}\text{C}$
—	Thermal Shutdown Hysteresis	—	—	+25	—	$^{\circ}\text{C}$

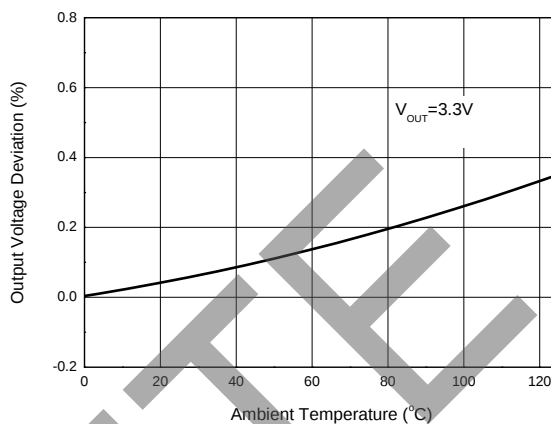
Note 5: Maximum Power Dissipation is Package Type and Case Temperature dependent. Please see Figure Maximum Power Dissipation.

Performance Characteristics

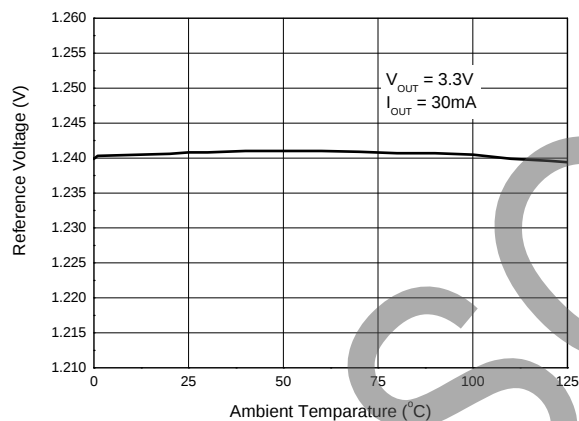
Dropout Voltage vs. Output Current



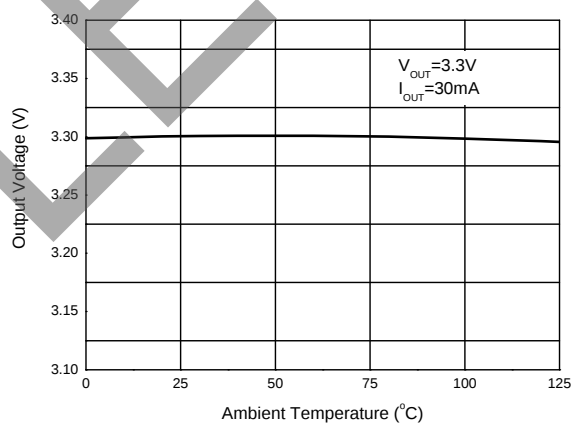
Load Regulation vs. Temperature



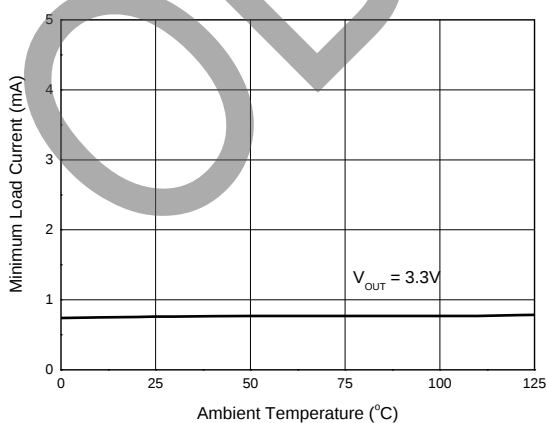
Reference Voltage vs. Temperature



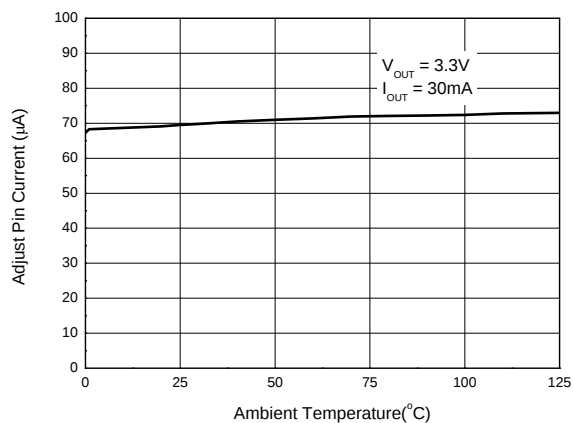
Output Voltage vs. Temperature



Minimum Load Current vs. Temperature

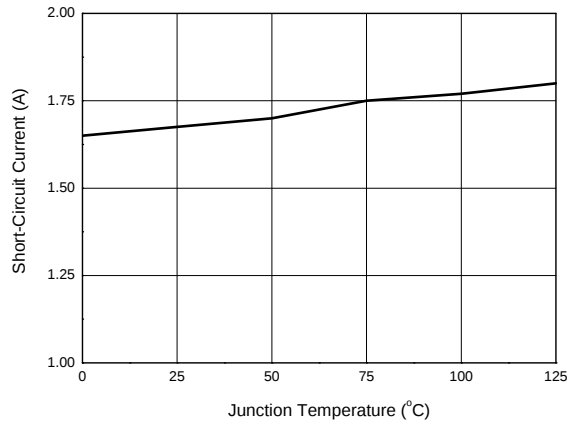


Adjust Pin Current vs. Temperature

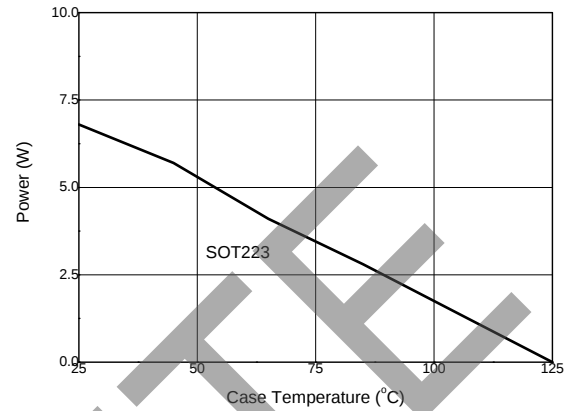


Performance Characteristics (Cont.)

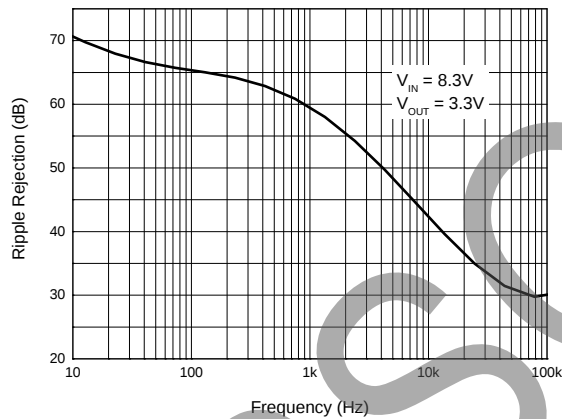
Short-Circuit Current vs. Temperature



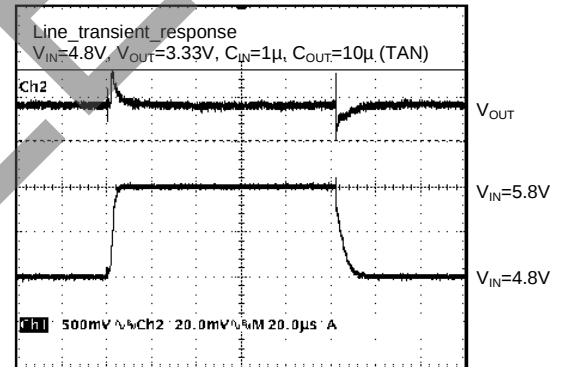
Maximum Power Dissipation



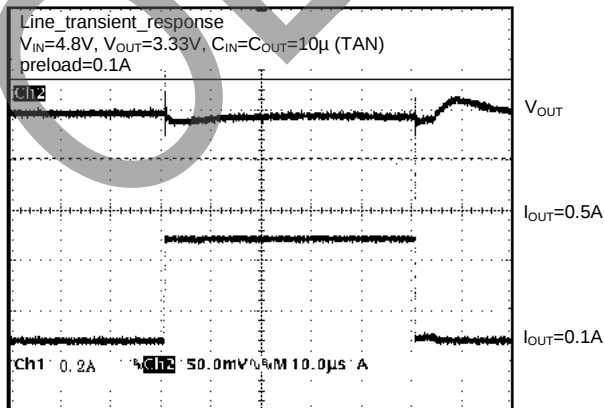
Ripple Rejection vs. Frequency



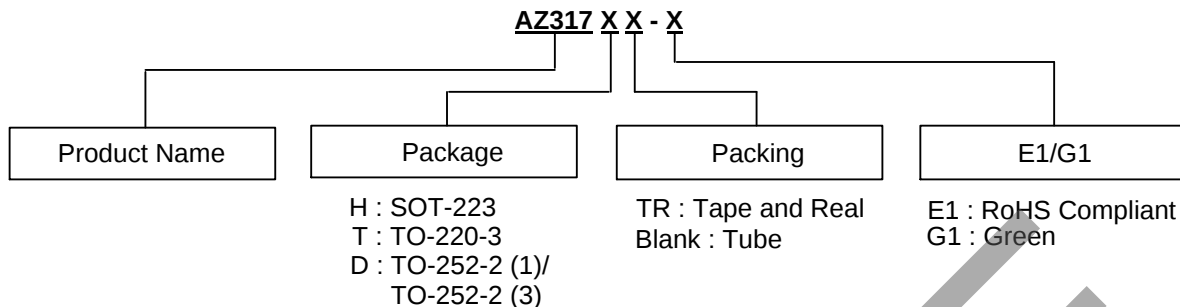
Line Transient Response



Load Transient Response



Ordering Information



Part Number	Package (Note 7)	Temperature Range	RoHS Compliant / Green	Marking ID	Packing	Quantity	Status (Note 6)
AZ317HTR-E1	SOT223	0 to +125°C	RoHS Compliant	EH31A	Tape & Reel	1000	In Production
AZ317HTR-G1	SOT223	0 to +125°C	Green	GH31A	Tape & Reel	1000	In Production
AZ317T-E1	TO220-3	0 to +125°C	RoHS Compliant	AZ317T-E1	Tube	1000	In Production
AZ317DTR-E1	TO252-2 (1)/(3)	0 to +125°C	RoHS Compliant	AZ317D-E1	Tape & Reel	2500	In Production

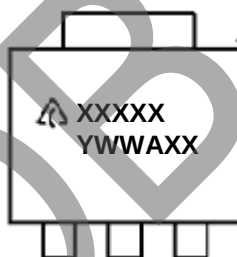


Notes: 6. All variants in TO-263-3 package are End of Life without any replacement.
 AZ317DTR-G1 and AZ317T-G1 are End of Life without any replacement.
 7. For packaging details, go to our website at: <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information

(1) SOT223

(Top View)

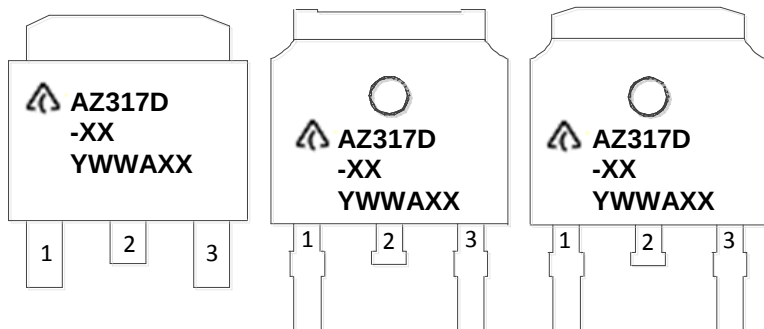


First Line: Logo and Marking ID (See Ordering Information)
 Second Line: Date Code
 Y: Year
 WW: Work Week of Molding
 A: Assembly House Code
 XX: 7th and 8th Digits of Batch Number

Marking Information (Cont.)

(2) TO252-2 (1/3)

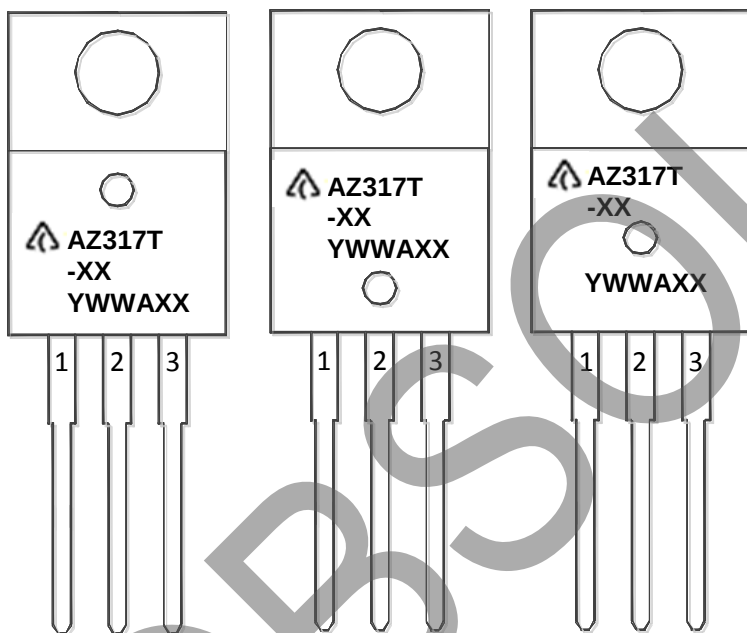
(Top View)



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

(3) TO220-3

(Top View)

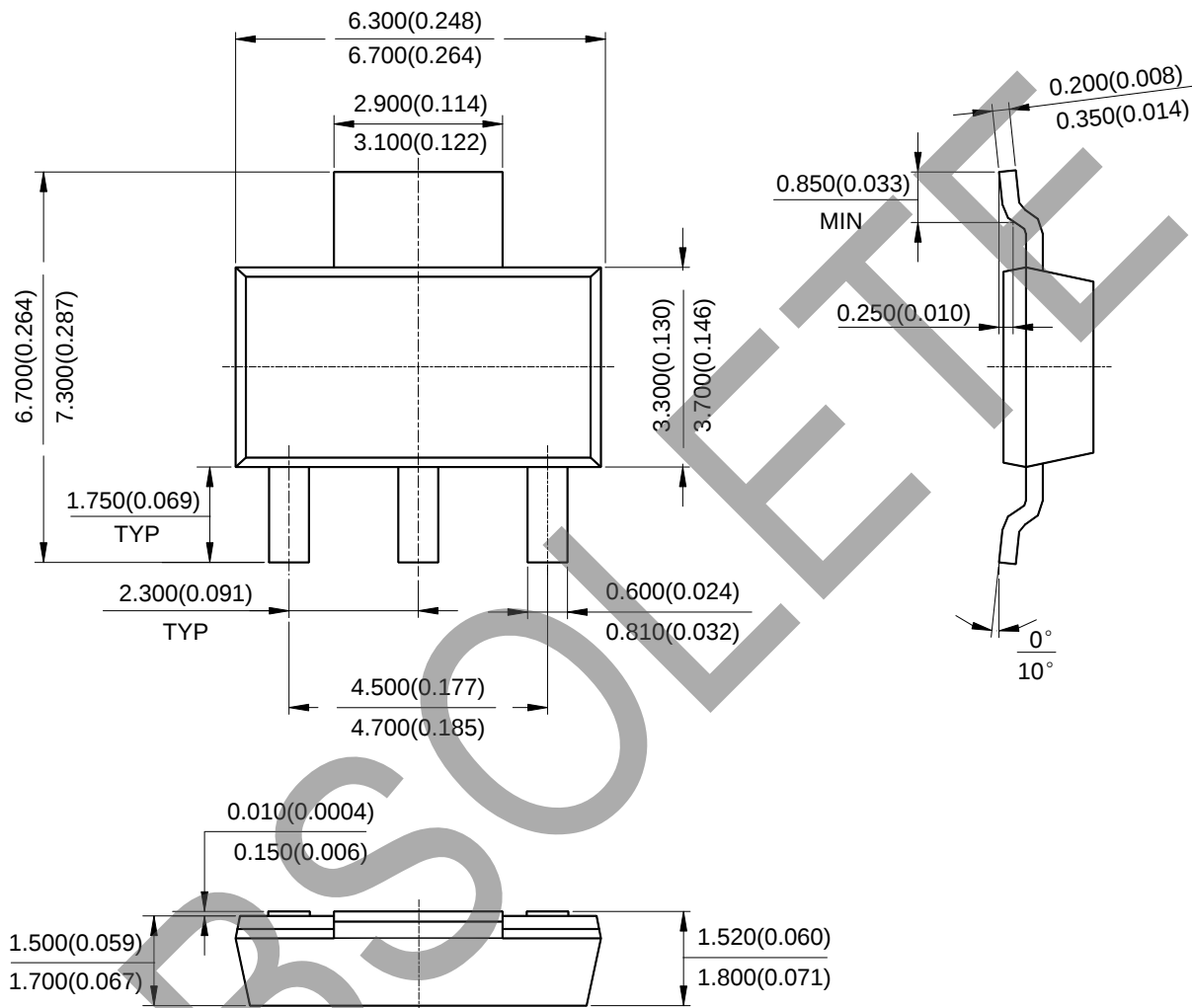


First and Second Lines: Logo and Marking ID
(See Ordering Information)
Third Line: Date Code
Y: Year
WW: Work Week of Molding
A: Assembly House Code
XX: 7th and 8th Digits of Batch Number

OBSOLETE - PART DISCONTINUED

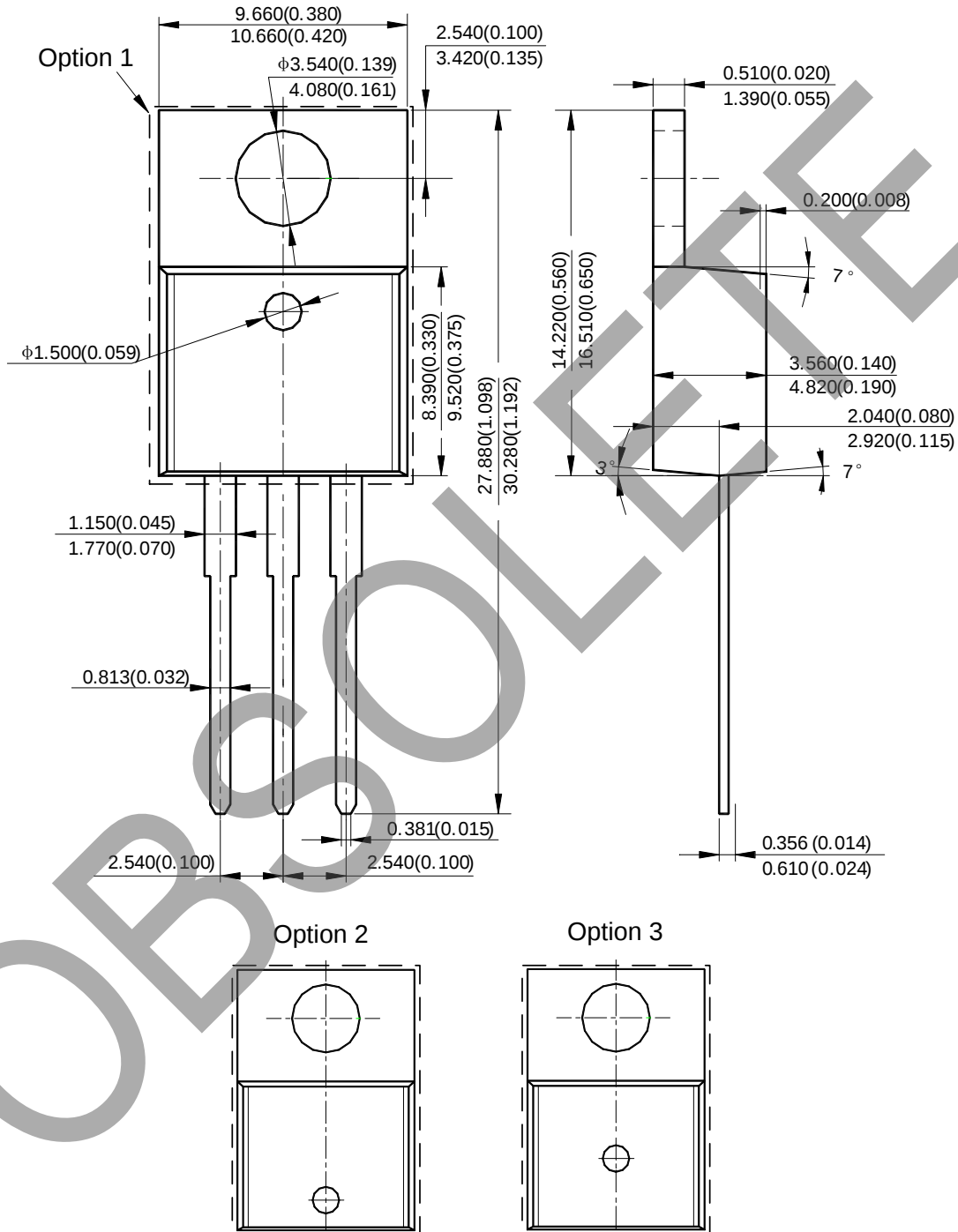
Package Outline Dimensions (All dimensions in mm(inch).)

(1) Package Type: SOT223



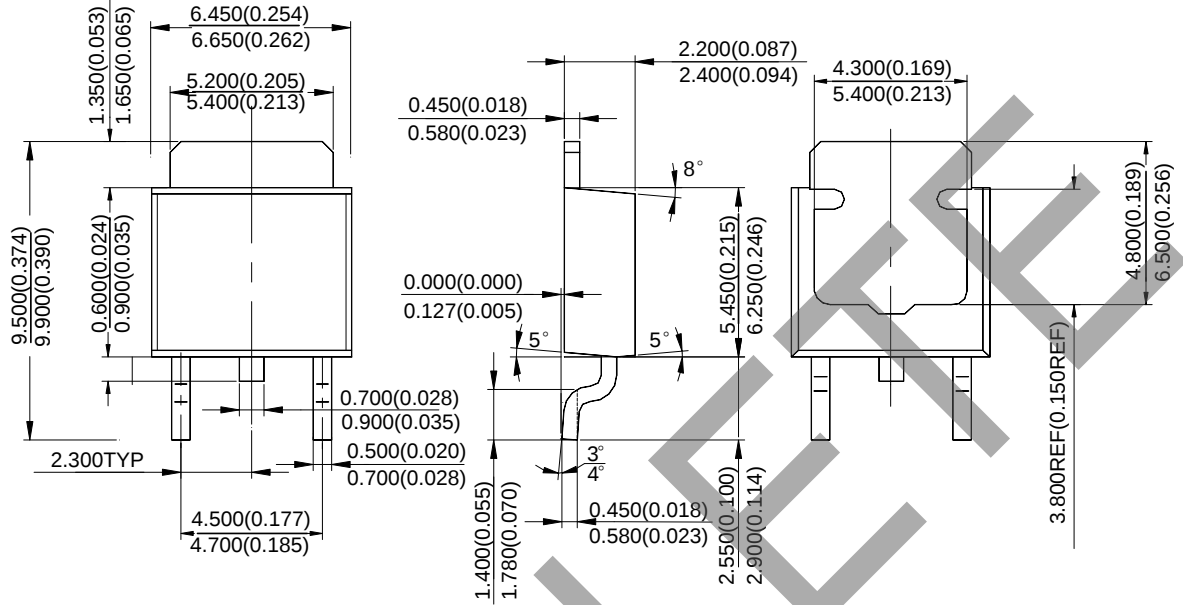
Package Outline Dimensions (Cont. All dimensions in mm(inch).)

(2) Package Type: TO220-3



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

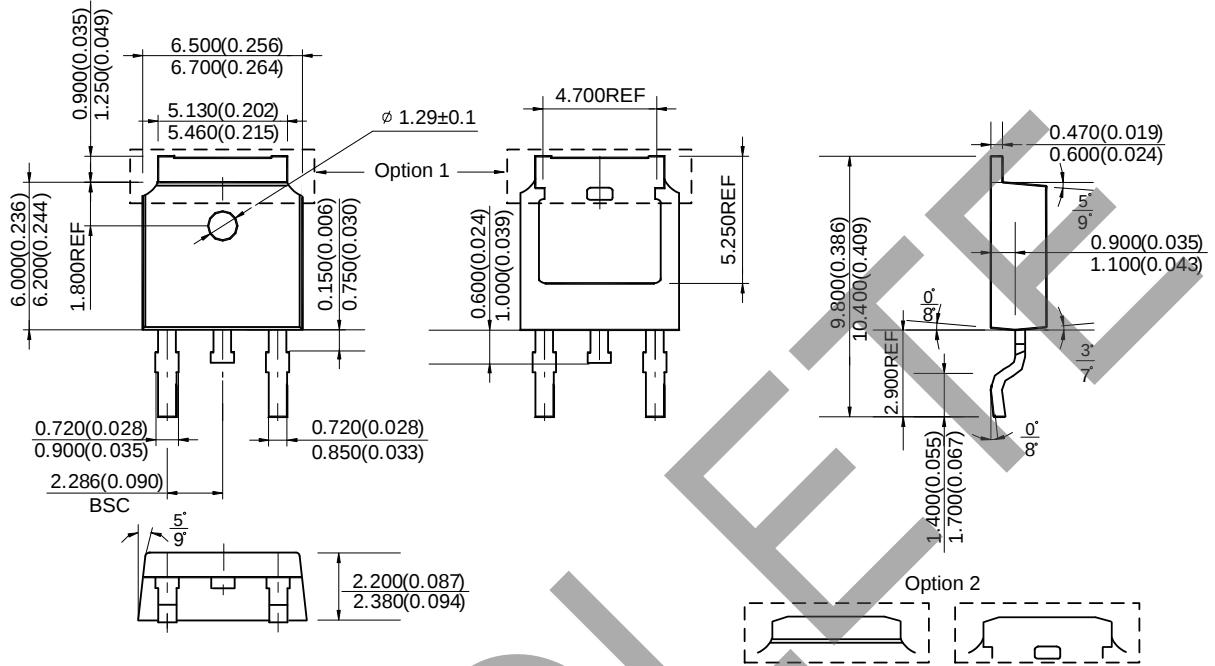
(3) Package Type: TO252-2 (1)



OBSOLETE - PART DISCONTINUED

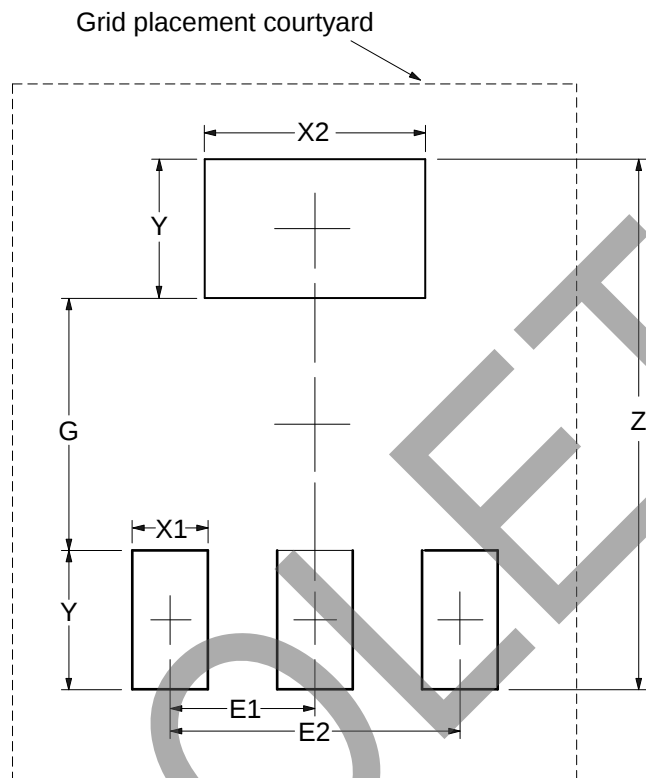
Package Outline Dimensions (Cont. All dimensions in mm(inch).)

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



Suggested Pad Layout

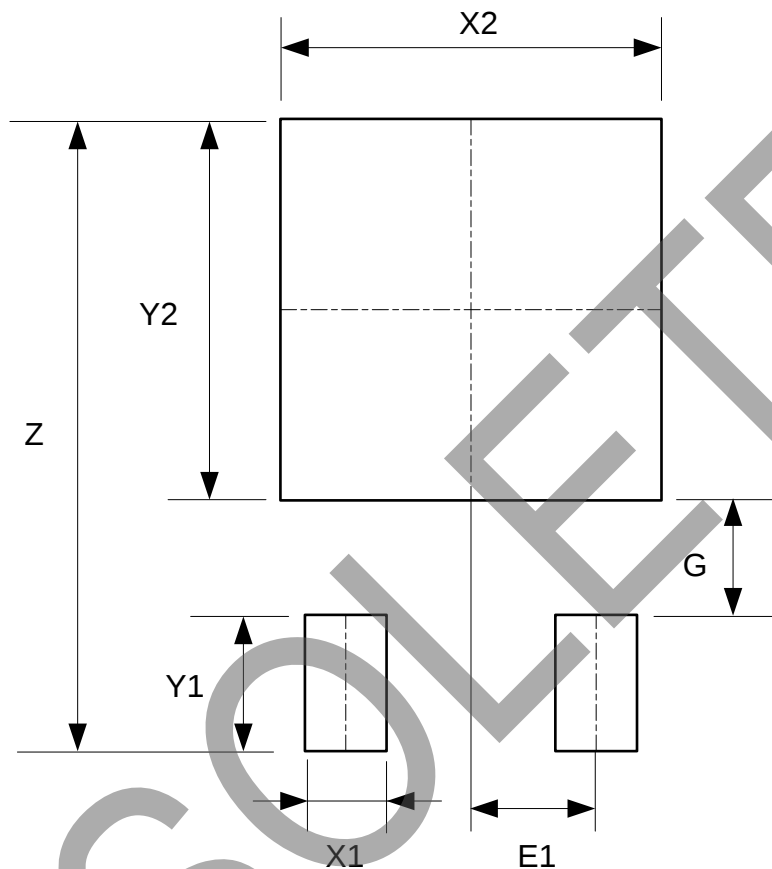
(1) Package Type: SOT223



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

Suggested Pad Layout (Cont.)

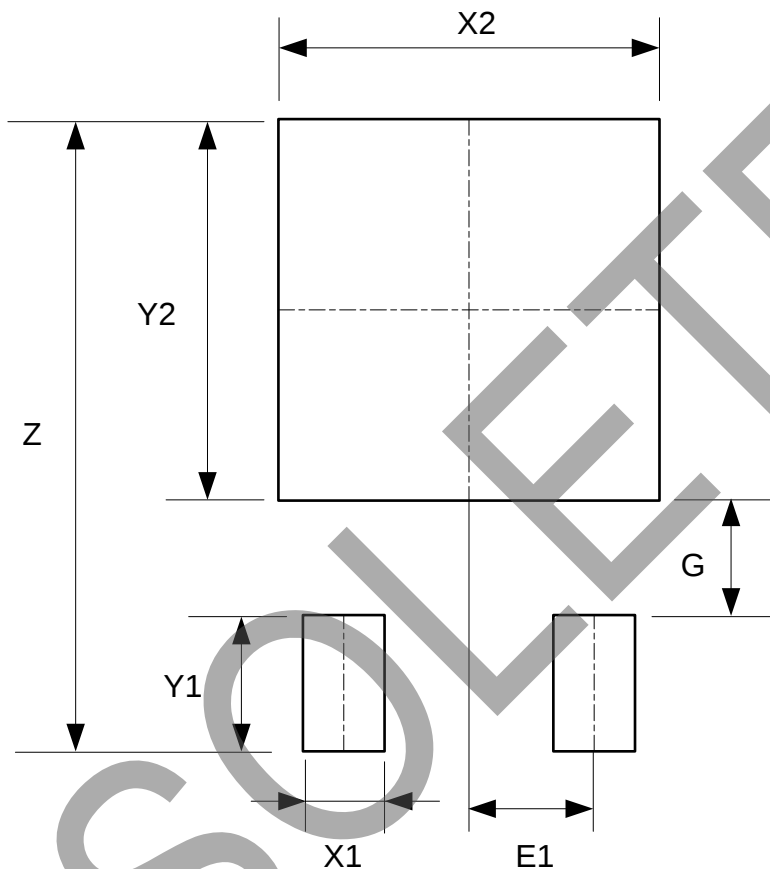
(2) Package Type: TO252-2 (1)



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

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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2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

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