



AME1085

3A Low Dropout Positive Voltage Regulator

■ General Description

The AME1085 is a 3A low-dropout positive voltage regulator. It is available in fixed and adjustable output voltage versions. Overcurrent and thermal protection are integrated onto the chip. Output current will limit as it reaches the pre-set current or temperature limit. At full rated output current the dropout voltage is 1.4V (max.). AME1085 series regulators provide excellent regulation over line, load and temperature variations.

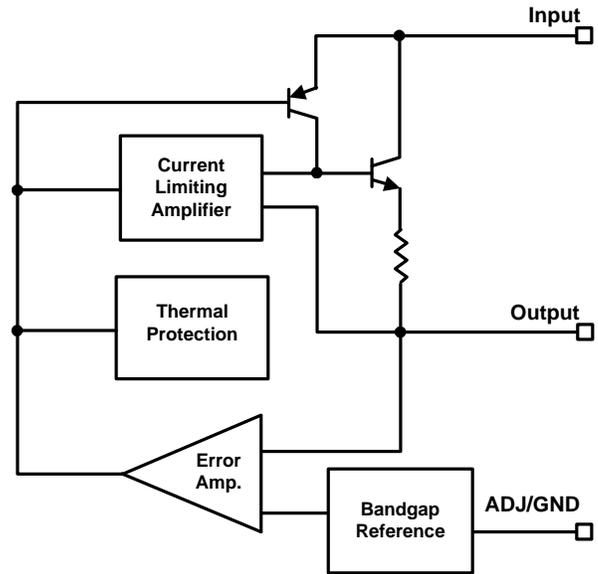
■ Features

- Low Dropout Voltage 1.2V Typically at 3A
- Adjustable or 3.3V Fixed Voltage
- Line Regulation Typically 0.015%
- Load Regulation Typically 0.05%
- Adjust Pin (ADJ) Current Less than 90µA
- Overcurrent Protection
- Thermal Protection
- Available in TO-263, TO-252, TO-220, SOT-223
- All AME's Lead Free Products Meet RoHS Standards

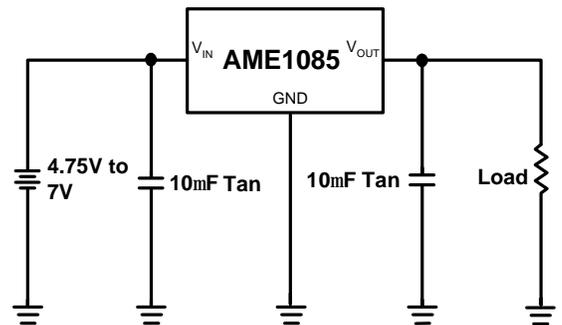
■ Applications

- High Efficiency Linear Regulators
- Post Regulators for Switching Supplies
- 5V to 3.3V Voltage Converter
- Battery Charger

■ Functional Block Diagram



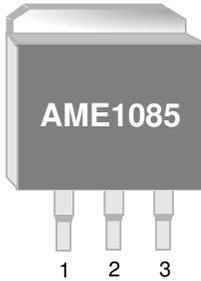
■ Typical Application





■ Pin Configuration

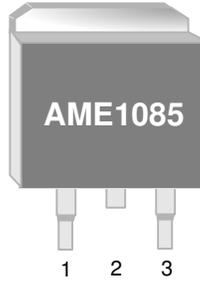
TO-263-3
Front View



- AME1085**
1. ADJ / GND
 2. OUT (TAB)
 3. IN

* Die Attach:
Conductive Epoxy

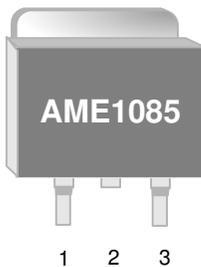
TO-263-2
Front View



- AME1085**
1. ADJ / GND
 2. OUT (TAB)
 3. IN

* Die Attach:
Conductive Epoxy

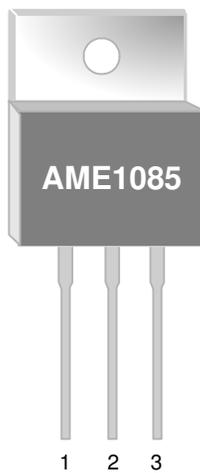
TO-252-2
Front View



- AME1085**
1. ADJ / GND
 2. OUT (TAB)
 3. IN

* Die Attach:
Conductive Epoxy

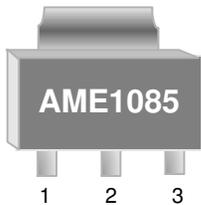
TO-220-3
Front View



- AME1085**
1. ADJ / GND
 2. OUT (TAB)
 3. IN

* Die Attach:
Conductive Epoxy

SOT-223
Front View

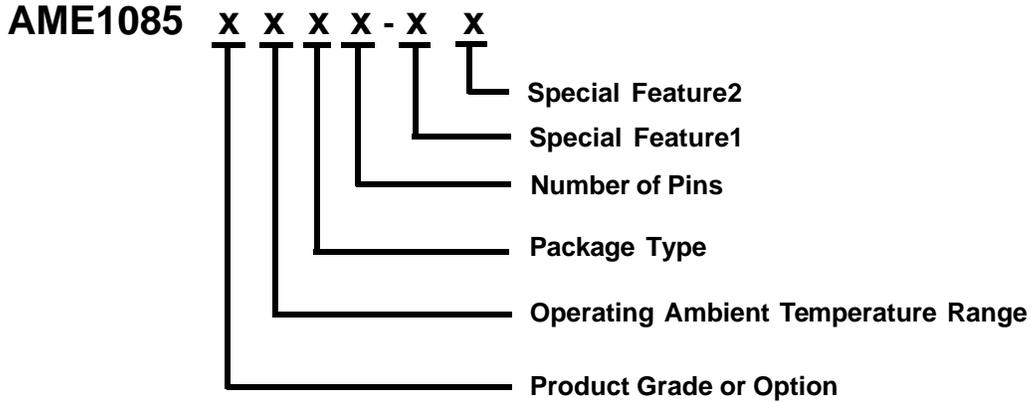


- AME1085**
1. ADJ / GND
 2. OUT (TAB)
 3. IN

* Die Attach:
Conductive Epoxy



■ Ordering Information



Product Grade or Option	Operating Ambient Temperature Range	Package Type	Number of Pins	Special Feature1	Special Feature2
A: ADJ D: 3.3V	C: 0°C to 70°C	B: TO-220 C: TO-252 D: TO-263 G: SOT-223	T: 3	3: TO-263-3 TO-252-3	Z: Lead Free



■ Ordering Information (contd.)

Part Number	Marking*	Output Voltage	Package	Operating Ambient Temperature Range
AME1085ACBT	AME1085 ACBT yyww	ADJ	TO-220-3	0°C to 70°C
AME1085ACBTZ	AME1085 ACBT yyww	ADJ	TO-220-3	0°C to 70°C
AME1085DCBT	AME1085 DCBT yyww	3.3	TO-220-3	0°C to 70°C
AME1085DCBTZ	AME1085 DCBT yyww	3.3	TO-220-3	0°C to 70°C
AME1085ACDT-3	AME1085 ACDT-3 yyww	ADJ	TO-263-3	0°C to 70°C
AME1085ACDT-3Z	AME1085 ACDT-3 yyww	ADJ	TO-263-3	0°C to 70°C
AME1085DCDT-3	AME1085 DCDT-3 yyww	3.3	TO-263-3	0°C to 70°C
AME1085DCDT-3Z	AME1085 DCDT-3 yyww	3.3	TO-263-3	0°C to 70°C
AME1085ACDT	AME1085 ACDT yyww	ADJ	TO-263-2	0°C to 70°C
AME1085ACDTZ	AME1085 ACDT yyww	ADJ	TO-263-2	0°C to 70°C
AME1085DCDT	AME1085 DCDT yyww	3.3	TO-263-2	0°C to 70°C
AME1085DCDTZ	AME1085 DCDT yyww	3.3	TO-263-2	0°C to 70°C
AME1085ACGTZ	BAQyyww	ADJ	SOT-223	0°C to 70°C

Note: yyww & yww represents the date code.

* A line on top of the first character represents lead free plating such as $\overline{\text{AME1085}}$

Please consult AME sales office or authorized Rep./Distributor for the availability of output voltage and package type.



■ Ordering Information

Part Number	Marking*	Output Voltage	Package	Operating Ambient Temperature Range
AME1085AMCT**	AME1085 AMCT yyww	ADJ	TO-252-2	0°C to 70°C
AME1085AMCTZ**	AME1085 AMCT yyww	ADJ	TO-252-2	0°C to 70°C
AME1085MCT**	AME1085 MCT yyww	3.3	TO-252-2	0°C to 70°C
AME1085MCTZ**	AME1085 MCT yyww	3.3	TO-252-2	0°C to 70°C

** This differs from our standard part numbering scheme due to historical precedent,

1. For AME1085ACCT please order AME1085AMCT instead.
2. For AME1085ACCTZ please order AME1085AMCTZ instead.
3. For AME1085DCCT please order AME1085MCT instead.
4. For AME1085DCCTZ please order AME1085MCTZ instead.



■ Absolute Maximum Ratings

Parameter	Package	Die Attach	Symbol	Maximum	Unit
Thermal Resistance* (Junction to Case)	TO-220-3	Conductive Epoxy	θ_{JC}	6	°C/W
	TO-252-2			5	
	SOT-223			25	
	TO-263-2 TO-263-3			5	
Thermal Resistance (Junction to Ambient)	TO-220-3	Conductive Epoxy	θ_{JA}	55	°C/W
	TO-252-2			90	
	SOT-223			120	
	TO-263-2 TO-263-3			80	
Internal Power Dissipation	TO-220-3	Conductive Epoxy	P_D	2200	mW
	TO-252-2			1200	
	SOT-223			900	
	TO-263-2 TO-263-3			1700	
Input Voltage			V_{IN}	7	V
Operating Junction Temperature Range			T_J	0 to 125	°C
Storage Temperature Range			T_{STG}	- 65 to 150	
Solder Iron (10 Sec)**				350	

Caution: Stress above the listed absolute maximum rating may cause permanent damage to the device.

* Measure θ_{JC} on backside center of tab.

** MIL-STD-202G 210F

AME1085
**3A Low Dropout
Positive Voltage Regulator**
■ Electrical Specifications
AME1085Axxx

Parameter	Symbol	Test Condition		Min	Typ	Max	Units
Reference voltage (adjustable voltage)	V_{REF}	$V_{IN} = 5V$ $I_O = 10mA$	$T_J = 25^\circ C$	1.238	1.250	1.262	V
			Over temp.	1.225		1.275	
Line regulation	Reg_{LINE}	$V_{IN} = 2.75 - 7V$ $I_O = 10mA$	$T_J = 25^\circ C$	-	0.015	0.2	%
			Over temp.	-	0.035	0.2	
Load regulation	Reg_{LOAD}	$V_{IN} = 5V$ $I_O = 10mA - 3A$	$T_J = 25^\circ C$	-	0.05	0.3	%
			Over temp.	-	0.2	0.4	
Dropout voltage $\Delta V_{OUT}, \Delta V_{REF} = 1\%$	V_D	$I_O = 10mA - 3A$	$T_J = 25^\circ C$	-	1.2	1.4	V
			Over temp.	-	1.3	-	
Current limit	I_S	$V_{IN} = 2.75 - 7V$, Over temp.		3.0	-	-	A
Temperature Coefficient	T_C	$V_{IN} = 2.75 - 7V$, $I_O = 10mA - 3A$		-	0.005	-	%/ $^\circ C$
Adjust pin current	I_{ADJ}	$V_{IN} = 2.75-7V$, $I_O = 10mA-3A$	$T_J = 25^\circ C$	-	55	-	μA
			Over Temp.	-	-	120	
Adjust pin current change	ΔI_{ADJ}	$V_{IN} = 2.75-7V$, $I_O = 10mA-3A$, Over Temp.		-	0.2	5	
Temperature stability	T_S	$V_{IN} = 5V$, $I_O = 500mA$, Over temp.		-	0.5	-	%
Minimum load current	I_O	$V_{IN} = 5V$		10	-	-	mA
RMS output noise	V_N	$T_J = 25^\circ C$		-	0.003	-	% V_O
Ripple rejection ratio	R_A	$V_{IN} = 5V$, $I_O = 3A$, Over temp.		-	72	-	dB

AME1085Dxxx

Parameter	Symbol	Test Condition		Min	Typ	Max	Units
Output voltage (fixed voltage)	V_O	$V_{IN} = 5V$ $I_O = 0A$	$T_J = 25^\circ C$	3.267	3.300	3.333	V
			Over temp.	3.234		3.366	
Line regulation	Reg_{LINE}	$V_{IN} = 4.5 - 7V$ $I_O = 0A$	$T_J = 25^\circ C$	-	0.015	0.2	%
			Over temp.	-	0.035	0.2	
Load regulation	Reg_{LOAD}	$V_{IN} = 5V$ $I_O = 0A - 3A$	$T_J = 25^\circ C$	-	0.05	0.3	%
			Over temp.	-	0.2	0.4	
Dropout voltage $\Delta V_{OUT}, \Delta V_{REF} = 1\%$	V_D	$V_{IN} = 4.5 - 7V$ $I_O = 0A - 3A$	$T_J = 25^\circ C$	-	1.2	1.4	V
			Over temp.	-	1.3	-	
Current limit	I_S	$V_{IN} = 4.5 - 7V$, Over temp.		3.0	-	-	A
Quiescent current (fixed model)	I_Q	$V_{IN} = 5V$, $I_O = 0A - 3A$, Over temp.		-	12	13	mA
Temperature Coefficient	T_C	$V_{IN} = 4.5 - 7V$, $I_O = 0A - 3A$		-	0.005	-	%/ $^\circ C$
Temperature stability	T_S	$V_{IN} = 5V$, $I_O = 500mA$, Over temp.		-	0.5	-	%
RMS output noise	V_N	$T_J = 25^\circ C$		-	0.003	-	% V_O
Ripple rejection ratio	R_A	$V_{IN} = 5V$, $I_O = 3A$, Over temp.		60	72	-	dB

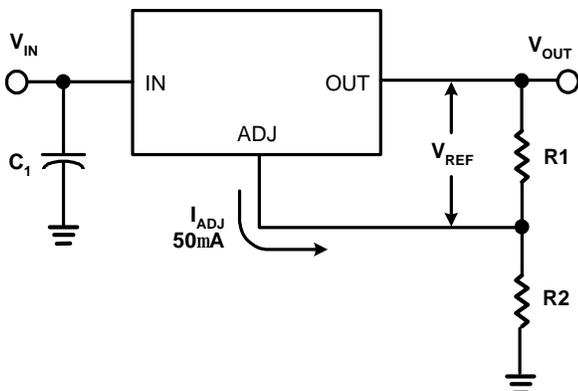
■ Application Description

1. Output Voltage Adjustment

Like most regulators, the AME1085 regulates the output by comparing the output voltage to an internally generated reference voltage. On the adjustable version, the V_{REF} is available externally as 1.25V between V_{OUT} and ADJ. The voltage ratio formed by R1 and R2 should be set to conduct 10mA (minimum output load). The output voltage is given by the following equation:

$$V_{OUT} = V_{REF} \left(1 + \frac{R2}{R1} \right) + I_{ADJ} \times R2$$

On fixed versions of AME1085, the voltage divider is provided internally.



$$V_{OUT} = V_{REF} \left(1 + \frac{R2}{R1} \right) + I_{ADJ} \times R2$$

2. Thermal Protection

AME1085 has thermal protection which limits junction temperature to 150°C. However, device functionality is only guaranteed to a maximum junction temperature of +125°C.

The power dissipation and junction temperature for AME1085 in TO-220 package are given by

$$P_D = (V_{IN} - V_{OUT}) \times I_{OUT}$$

$$T_{JUNCTION} = T_{AMBIENT} + (P_D \times \theta_{JA})$$

Note: $T_{JUNCTION}$ must not exceed 125°C

3. Current Limit Protection

AME1085 is protected against overload conditions. Current protection is triggered at typical 4.5A.

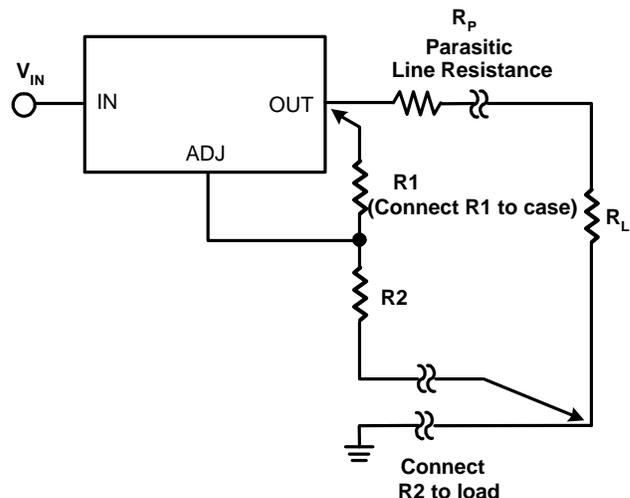
4. Stability and Load Regulation

AME1085 requires a capacitor from V_{OUT} to GND to provide compensation feedback to the internal gain stage. This is to ensure stability at the output terminal. Typically, a 10µF tantalum or 50µF aluminum electrolytic is sufficient.

(Note: It is important that the ESR for this capacitor does not exceed 0.5W.)

The output capacitor does not have a theoretical upper limit and increasing its value will increase stability. $C_{OUT} = 100\mu\text{F}$ or more is typical for high current regulator design.

For the adjustable version, the best load regulation is accomplished when the top of the resistor divider (R1) is connected directly to the output pin of the AME1085. When so connected, R_p is not multiplied by the divider ratio. For fixed output versions, the top of R1 is internally connected to the output and ground pin can be connected to low side of the load.

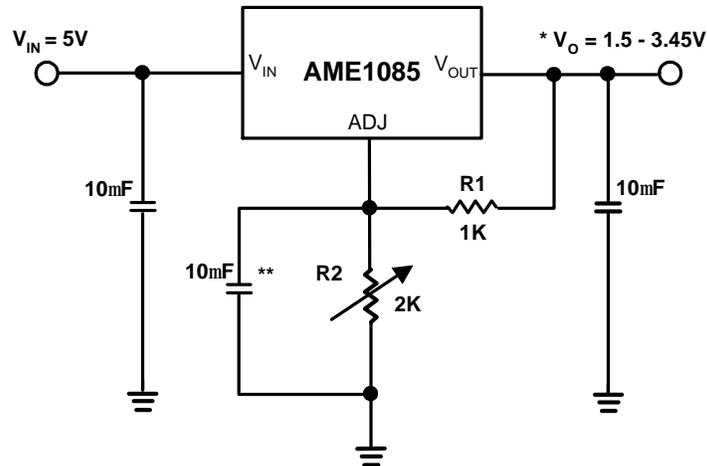




5. Thermal Consideration

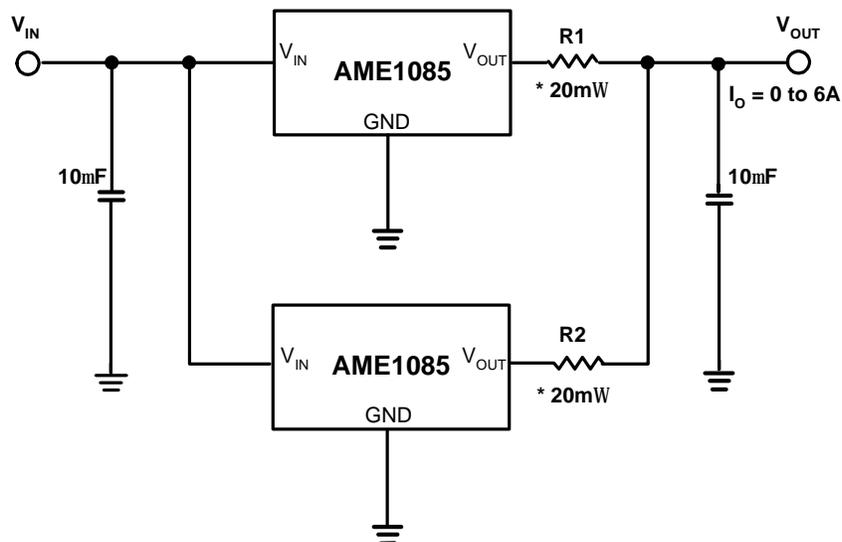
The AME1085 series contain thermal limiting circuitry designed to protect itself for over-temperature conditions. Even for normal load conditions, maximum junction temperature ratings must not be exceeded. As mention in thermal protection section, we need to consider all sources of thermal resistance between junction and ambient. It includes junction-to-case, case-to-heat-sink interface and heat sink thermal resistance itself.

Junction-to-case thermal resistance is specified from the IC junction to the bottom of the case directly below the die. Proper mounting is required to ensure the best possible thermal flow from this area of the package to the heat sink. The case of all devices in this series is electrically connected to the output. Therefore, if the case of the device must be electrically isolated, a thermally conductive spacer is recommended.

■ Advanced Applications
Adjustable Output Voltage


Note: $* V_{OUT} = V_{REF} \left(1 + \frac{R2}{R1} \right) + I_{ADJ} \times R2$

** Optional for improved ripple rejection

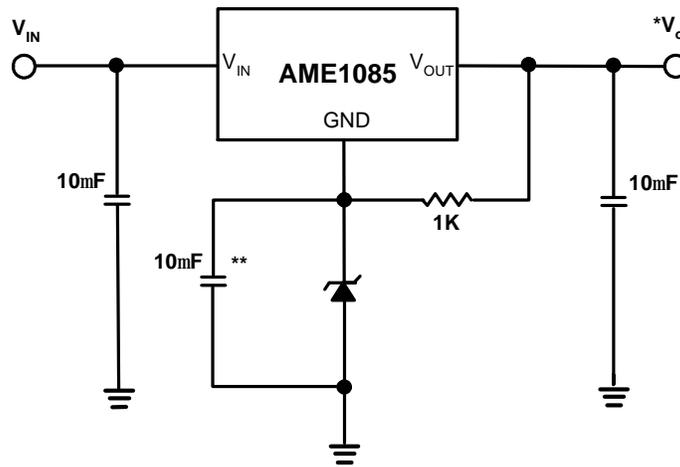
Paralleling Regulators


Note: * 20mΩ is ballast resistance
The inter - connection of #18 wire could act as ballast resistance



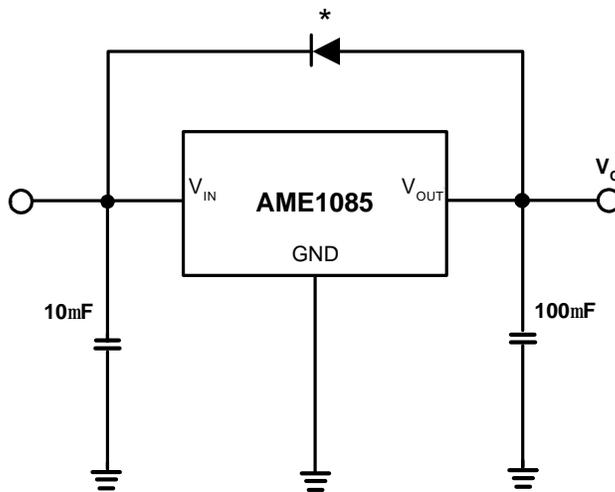
■ Advanced Applications (contd.)

Regulator with Reference



Note: * $V_o = V_{REF} + V_Z$ (V_Z : breakdown voltage of Zener diode)
** Optional for improved ripple rejection

Regulator with Reverse Diode Protection



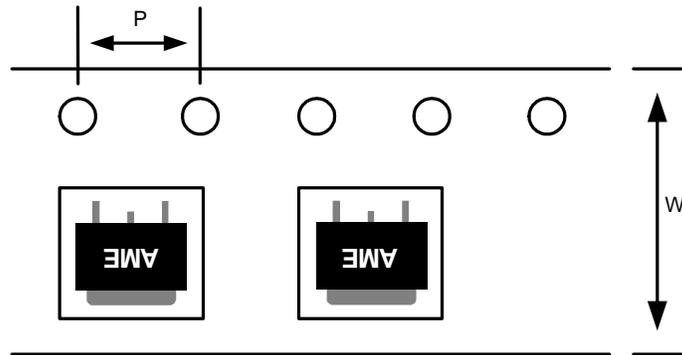


■ External Resistor Divider Table for Customized Voltage (contd.)

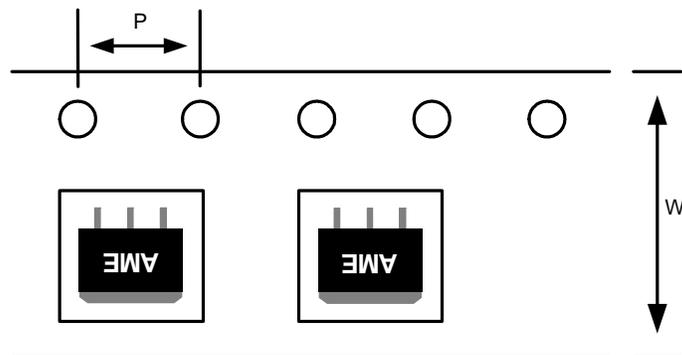
R1 (Ohm)	100	102	105	107	110	113	115	118	121	124
Vout	$R2(\text{Ohm})=(V_{\text{out}}-1.25)*R1/(1.25+50u*R1)$									
1.25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.30	3.984	4.063	4.182	4.262	4.381	4.500	4.579	4.698	4.817	4.936
1.35	7.968	8.127	8.365	8.524	8.761	8.999	9.158	9.396	9.633	9.871
1.40	11.95	12.19	12.55	12.79	13.14	13.50	13.74	14.09	14.45	14.81
1.45	15.94	16.25	16.73	17.05	17.52	18.00	18.32	18.79	19.27	19.74
1.50	19.92	20.32	20.91	21.31	21.90	22.50	22.89	23.49	24.08	24.68
1.55	23.90	24.38	25.09	25.57	26.28	27.00	27.47	28.19	28.90	29.61
1.60	27.89	28.44	29.28	29.83	30.67	31.50	32.05	32.88	33.72	34.55
1.65	31.87	32.51	33.46	34.09	35.05	36.00	36.63	37.58	38.53	39.48
1.70	35.86	36.57	37.64	38.36	39.43	40.50	41.21	42.28	43.35	44.42
1.75	39.84	40.63	41.82	42.62	43.81	45.00	45.79	46.98	48.17	49.36
1.80	43.82	44.70	46.01	46.88	48.19	49.50	50.37	51.68	52.98	54.29
1.85	47.81	48.76	50.19	51.14	52.57	54.00	54.95	56.37	57.80	59.23
1.90	51.79	52.82	54.37	55.40	56.95	58.50	59.53	61.07	62.62	64.16
1.95	55.78	56.89	58.55	59.66	61.33	63.00	64.11	65.77	67.43	69.10
2.00	59.76	60.95	62.74	63.93	65.71	67.49	68.68	70.47	72.25	74.03
2.05	63.75	65.01	66.92	68.19	70.09	71.99	73.26	75.17	77.07	78.97
2.10	67.73	69.08	71.10	72.45	74.47	76.49	77.84	79.86	81.88	83.90
2.15	71.71	73.14	75.28	76.71	78.85	80.99	82.42	84.56	86.70	88.84
2.20	75.70	77.21	79.47	80.97	83.23	85.49	87.00	89.26	91.52	93.77
2.25	79.68	81.27	83.65	85.24	87.61	89.99	91.58	93.96	96.33	98.71
2.30	83.67	85.33	87.83	89.50	92.00	94.49	96.16	98.65	101.2	103.6
2.35	87.65	89.40	92.01	93.76	96.38	98.99	100.7	103.4	106.0	108.6
2.40	91.63	93.46	96.20	98.02	100.8	103.5	105.3	108.1	110.8	113.5
2.45	95.62	97.52	100.4	102.3	105.1	108.0	109.9	112.7	115.6	118.5
2.50	99.60	101.6	104.6	106.5	109.5	112.5	114.5	117.4	120.4	123.4
2.55	103.6	105.6	108.7	110.8	113.9	117.0	119.1	122.1	125.2	128.3
2.60	107.6	109.7	112.9	115.1	118.3	121.5	123.6	126.8	130.1	133.3
2.65	111.6	113.8	117.1	119.3	122.7	126.0	128.2	131.5	134.9	138.2
2.70	115.5	117.8	121.3	123.6	127.0	130.5	132.8	136.2	139.7	143.1
2.75	119.5	121.9	125.5	127.9	131.4	135.0	137.4	140.9	144.5	148.1
2.80	123.5	126.0	129.7	132.1	135.8	139.5	141.9	145.6	149.3	153.0
2.85	127.5	130.0	133.8	136.4	140.2	144.0	146.5	150.3	154.1	157.9
2.90	131.5	134.1	138.0	140.6	144.6	148.5	151.1	155.0	159.0	162.9
2.95	135.5	138.2	142.2	144.9	148.9	153.0	155.7	159.7	163.8	167.8
3.00	139.4	142.2	146.4	149.2	153.3	157.5	160.3	164.4	168.6	172.7
3.05	143.4	146.3	150.6	153.4	157.7	162.0	164.8	169.1	173.4	177.7
3.10	147.4	150.3	154.8	157.7	162.1	166.5	169.4	173.8	178.2	182.6

■ External Resistor Divider Table for Customized Voltage

R1 (Ohm)	100	102	105	107	110	113	115	118	121	124
Vout	R2(Ohm)=(Vout-1.25)*R1/(1.25+50u*R1)									
3.15	151.4	154.4	158.9	161.9	166.5	171.0	174.0	178.5	183.0	187.5
3.20	155.4	158.5	163.1	166.2	170.8	175.5	178.6	183.2	187.9	192.5
3.25	159.4	162.5	167.3	170.5	175.2	180.0	183.2	187.9	192.7	197.4
3.30	163.3	166.6	171.5	174.7	179.6	184.5	187.7	192.6	197.5	202.4
3.35	167.3	170.7	175.7	179.0	184.0	189.0	192.3	197.3	202.3	207.3
3.40	171.3	174.7	179.8	183.3	188.4	193.5	196.9	202.0	207.1	212.2
3.45	175.3	178.8	184.0	187.5	192.8	198.0	201.5	206.7	211.9	217.2
3.50	179.3	182.9	188.2	191.8	197.1	202.5	206.1	211.4	216.8	222.1
3.55	183.3	186.9	192.4	196.0	201.5	207.0	210.6	216.1	221.6	227.0
3.60	187.3	191.0	196.6	200.3	205.9	211.5	215.2	220.8	226.4	232.0
3.65	191.2	195.0	200.8	204.6	210.3	216.0	219.8	225.5	231.2	236.9
3.70	195.2	199.1	204.9	208.8	214.7	220.5	224.4	230.2	236.0	241.8
3.75	199.2	203.2	209.1	213.1	219.0	225.0	228.9	234.9	240.8	246.8
3.80	203.2	207.2	213.3	217.3	223.4	229.5	233.5	239.6	245.7	251.7
3.85	207.2	211.3	217.5	221.6	227.8	234.0	238.1	244.3	250.5	256.6
3.90	211.2	215.4	221.7	225.9	232.2	238.5	242.7	249.0	255.3	261.6
3.95	215.1	219.4	225.9	230.1	236.6	243.0	247.3	253.7	260.1	266.5
4.00	219.1	223.5	230.0	234.4	240.9	247.5	251.8	258.4	264.9	271.5
4.05	223.1	227.6	234.2	238.7	245.3	252.0	256.4	263.1	269.7	276.4
4.10	227.1	231.6	238.4	242.9	249.7	256.5	261.0	267.8	274.6	281.3
4.15	231.1	235.7	242.6	247.2	254.1	261.0	265.6	272.5	279.4	286.3
4.20	235.1	239.7	246.8	251.4	258.5	265.5	270.2	277.2	284.2	291.2
4.25	239.0	243.8	250.9	255.7	262.8	270.0	274.7	281.9	289.0	296.1
4.30	243.0	247.9	255.1	260.0	267.2	274.5	279.3	286.6	293.8	301.1
4.35	247.0	251.9	259.3	264.2	271.6	279.0	283.9	291.3	298.6	306.0
4.40	251.0	256.0	263.5	268.5	276.0	283.5	288.5	296.0	303.5	310.9
4.45	255.0	260.1	267.7	272.8	280.4	288.0	293.1	300.7	308.3	315.9
4.50	259.0	264.1	271.9	277.0	284.7	292.5	297.6	305.4	313.1	320.8
4.55	262.9	268.2	276.0	281.3	289.1	297.0	302.2	310.1	317.9	325.7
4.60	266.9	272.2	280.2	285.5	293.5	301.5	306.8	314.8	322.7	330.7
4.65	270.9	276.3	284.4	289.8	297.9	306.0	311.4	319.5	327.5	335.6
4.70	274.9	280.4	288.6	294.1	302.3	310.5	315.9	324.2	332.4	340.6
4.75	278.9	284.4	292.8	298.3	306.7	315.0	320.5	328.8	337.2	345.5
4.80	282.9	288.5	297.0	302.6	311.0	319.5	325.1	333.5	342.0	350.4
4.85	286.9	292.6	301.1	306.8	315.4	324.0	329.7	338.2	346.8	355.4
4.90	290.8	296.6	305.3	311.1	319.8	328.5	334.3	342.9	351.6	360.3
4.95	294.8	300.7	309.5	315.4	324.2	333.0	338.8	347.6	356.4	365.2
5.00	298.8	304.8	313.7	319.6	328.6	337.5	343.4	352.3	361.3	370.2

■ Tape and Reel Dimension
TO-252-2

Carrier Tape, Number of Components Per Reel and Reel Size

Package	Carrier Width (W)	Pitch (P)	Part Per Full Reel	Reel Size
TO-252-2	16.0±0.1 mm	4.0±0.1 mm	2500pcs	330±1 mm

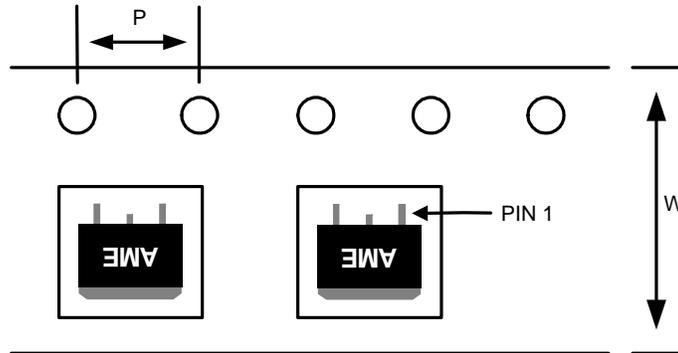
TO-263-3

Carrier Tape, Number of Components Per Reel and Reel Size

Package	Carrier Width (W)	Pitch (P)	Part Per Full Reel	Reel Size
TO-263-3	24.0±0.1 mm	4.0±0.1 mm	800pcs	330±1 mm



■ Tape and Reel Dimension

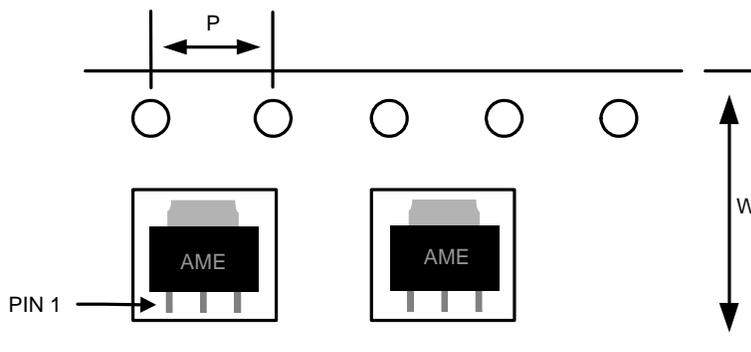
TO-263-2



Carrier Tape, Number of Components Per Reel and Reel Size

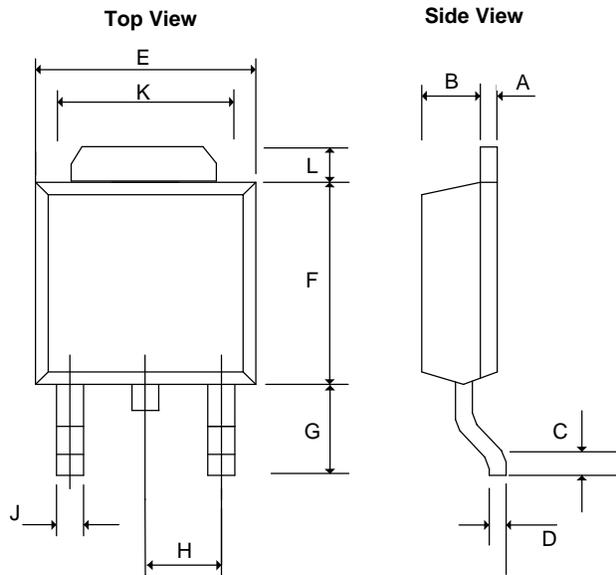
Package	Carrier Width (W)	Pitch (P)	Part Per Full Reel	Reel Size
TO-263-2	24.0±0.1 mm	4.0±0.1 mm	800pcs	330±1 mm

SOT-223



Carrier Tape, Number of Components Per Reel and Reel Size

Package	Carrier Width (W)	Pitch (P)	Part Per Full Reel	Reel Size
SOT-223	12.0±0.1 mm	4.0±0.1 mm	2500pcs	330±1 mm

■ Package Dimension
TO-252-2


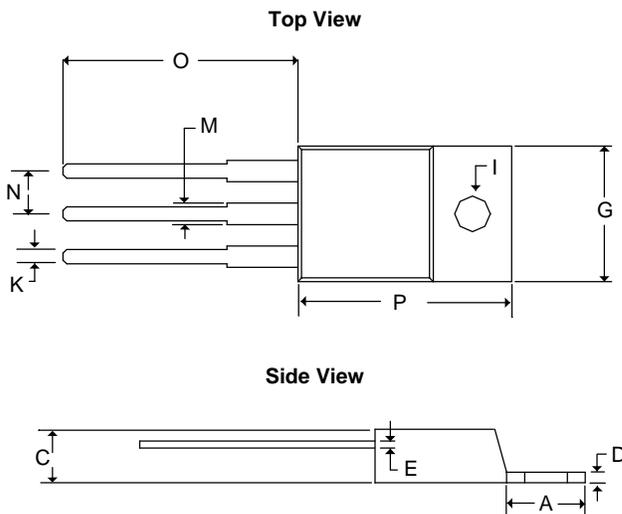
SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.43	0.58	0.0169	0.0230
B	1.60	1.95	0.0630	0.0768
C	0.51	1.78	0.0200	0.0701
D	0.43	0.60	0.0169	0.0236
E	6.35	6.80	0.2500	0.2677
F	5.36	7.20	0.2110	0.2835
G	2.20	3.00	0.0866	0.1181
H	-	* 2.30	-	*0.0906
J	-	0.97	-	0.0380
K	5.20	5.50	0.2047	0.2165
L	1.40REF		0.055REF	

*: **Typical Value**

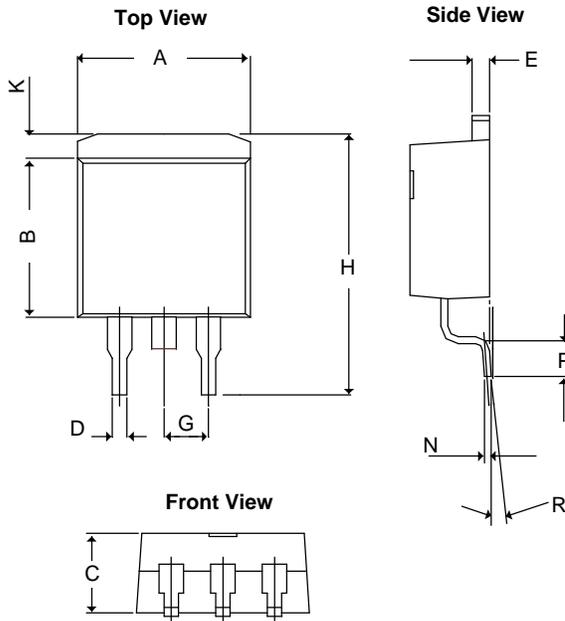
Notes:

1. Controlling dimension: Millimeters.

2. Maximum lead thickness includes lead finish thickness. Minimum lead thickness is the minimum thickness of base material.

TO-220-3


SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.58	7.49	0.2197	0.2949
C	2.03	4.83	0.0800	0.1902
D	0.50	1.40	0.0197	0.0550
E	0.30	1.15	0.0118	0.0453
G	9.65	10.67	0.3799	0.4200
I	3.53	4.09	0.1390	0.1610
K	0.50	1.15	0.0197	0.0453
M	1.14	1.78	0.0449	0.0700
N	2.28	2.80	0.0898	0.1102
O	12.70	14.74	0.5000	0.5803
P	14.22	16.51	0.5600	0.6500

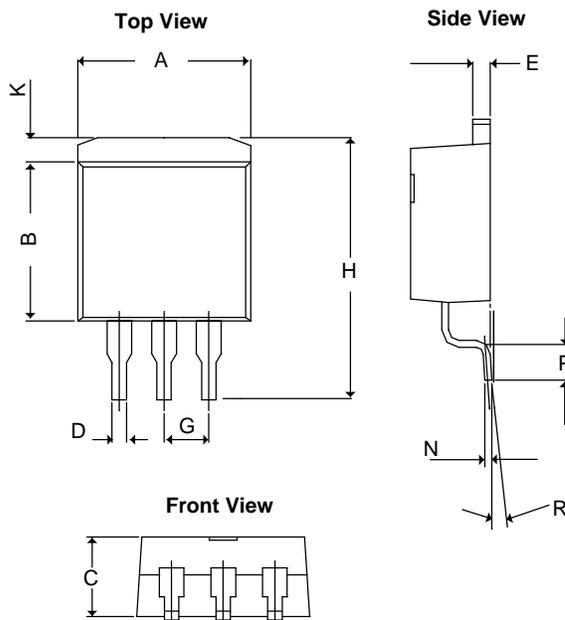
■ Package Dimension
TO-263-2


SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.65	10.42	0.380	0.410
B	8.28	9.66	0.326	0.380
C	4.06	4.83	0.160	0.190
D	0.50	1.36	0.020	0.054
E	1.14	1.45	0.045	0.057
G	*2.54		*0.100	
H	14.60	15.60	0.5748	0.61417
K	0.99	2.93	0.03898	0.11535
N	0.381REF		0.015REF	
P	2.28	2.80	0.08976	0.11024
R	0°	8°	0°	8°

*: Typical Value

Notes:

1. Controlling dimension: Millimeters.
2. Maximum lead thickness includes lead finish thickness Minimum lead thickness is the minimum thickness of base material.

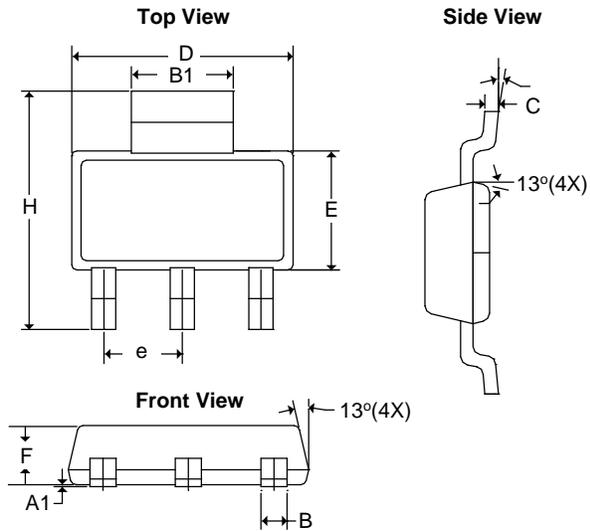
TO-263-3


SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.65	10.668	0.380	0.420
B	8.28	9.66	0.326	0.380
C	4.06	4.83	0.160	0.190
D	0.50	1.36	0.020	0.054
E	1.14	1.45	0.045	0.057
G	*2.54		*0.100	
H	14.60	15.875	0.5748	0.625
K	0.99	2.93	0.03898	0.11535
N	0.381REF		0.015REF	
P	2.28	2.80	0.08976	0.11024
R	0°	8°	0°	8°

*: Typical Value

Notes:

1. Controlling dimension: Millimeters.
2. Maximum lead thickness includes lead finish thickness Minimum lead thickness is the minimum thickness of base material.

■ Package Dimension
SOT-223


SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A ₁	0.01	0.10	0.0004	0.0039
B	0.60	0.84	0.0236	0.0330
B ₁	2.90	3.15	0.1140	0.1240
C	0.24	0.38	0.0094	0.0150
D	6.30	6.71	0.2480	0.2640
E	3.30	3.71	0.1299	0.1460
e	2.30 BSC		0.0906 BSC	
F	1.40	1.80	0.0551	0.0709
H	6.70	7.30	0.2638	0.2874
q	0°	10°	0°	10°



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