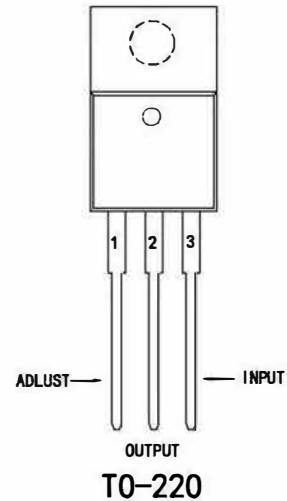
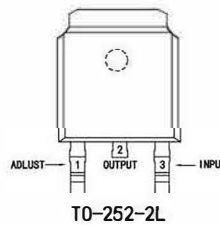
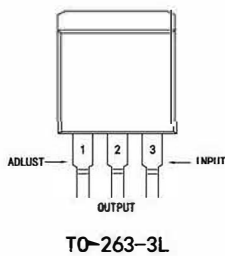
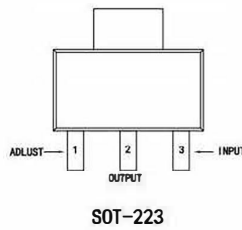
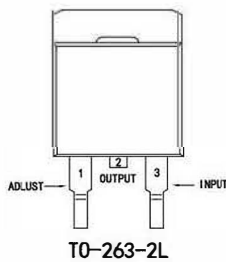




EN: This Datasheet/Document is presented by the manufacturer.

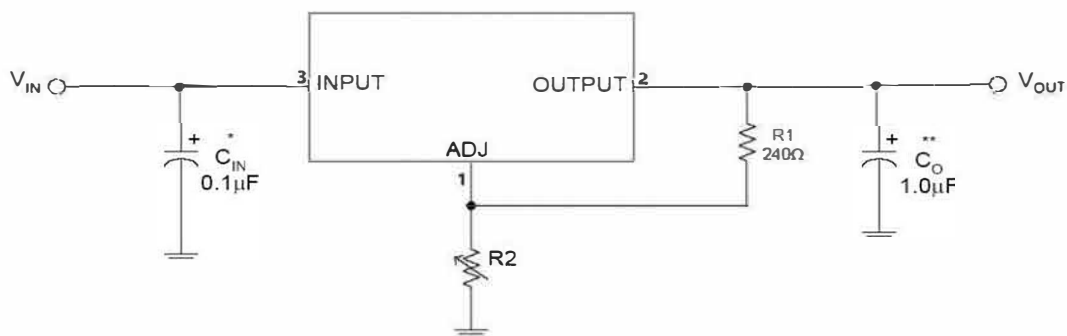
Please visit our website for pricing and availability at www.hestore.hu.

Pin Description



NAME	PIN				I/O	DESCRIPTION
	TO-220	SOT-223	TO-263	TO-252		
AJD	1	1	1	1	-	Adjust pin
V _{IN}	3	3	3	3	I	Input voltage pin for the regulator
V _{OUT}	2,TAB	2,4	2,TAB	2,TAB	O	Output voltage pin for the regulator

Typical Application 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 100 μA, the error associated with this term is negligible in most applications.

Function Block

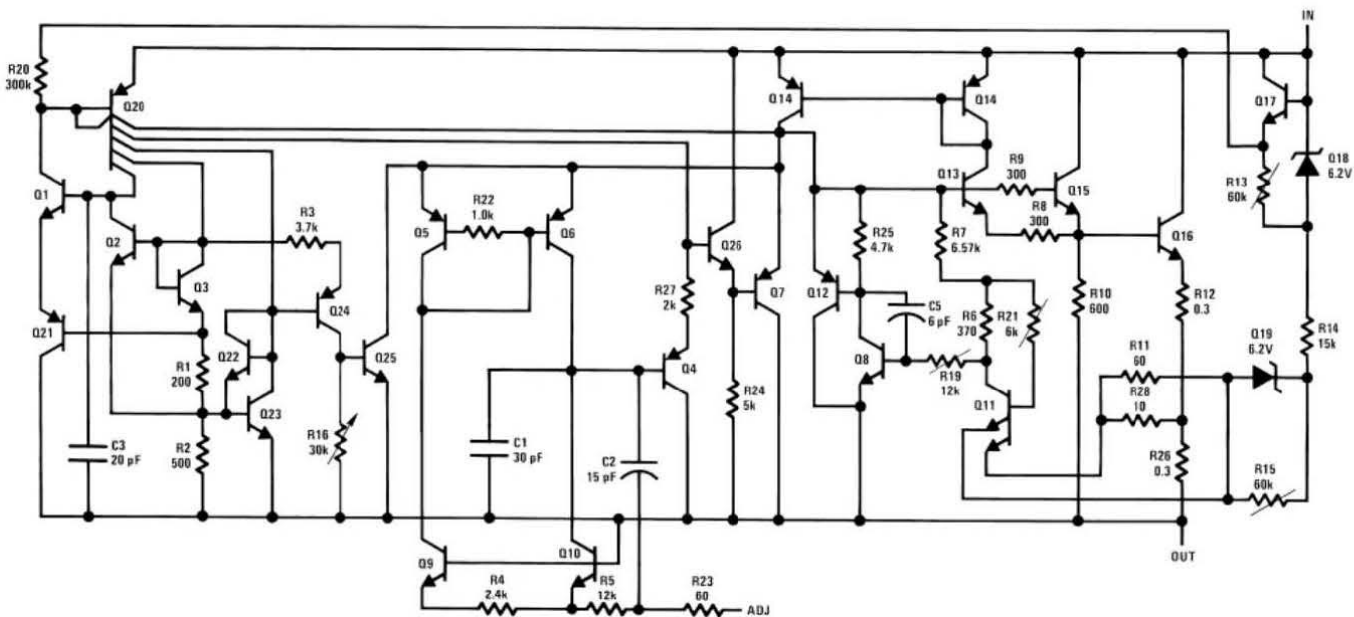


Figure 1 Function Block Diagram of LM350

Absolute Maximum Ratings (Ta=25°C)

Characteristic	Symbol	Min .	Max .	Unit
Input - Output Voltage Difference	Vin-Vout		40	V
Power Dissipation	Pd	Internal limited		
Maximum junction temperature	T _J		150	°C
Storage temperature	T _S	-40	150	°C
Lead temperature (soldering , 10sec)	T _{LEAD}		260	°C
ESD (human body model)	ESD		4000	V
Operating temperature	T _{oJ}	-40~ 125		°C

Recommended Operating Conditions(Ta=25°C)

Parameter Name	Min.	Max.	Unit
Input Voltage Range		37	V
Operating temperature	-40	125	°C

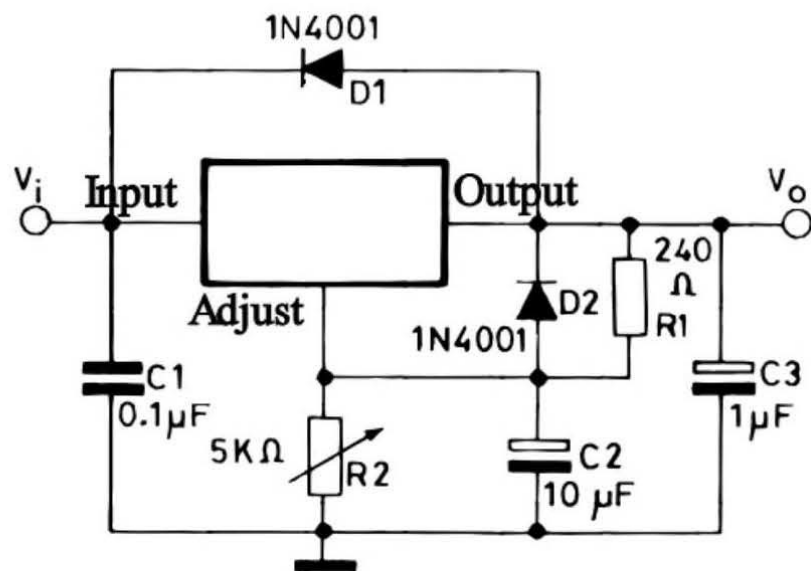
Electrical Characteristics

($V_{IN}-V_{OUT} = 5V$, $I_{OUT} = 10\text{ mA}$, $T_a = 25^\circ\text{C}$, unless otherwise specified .) *

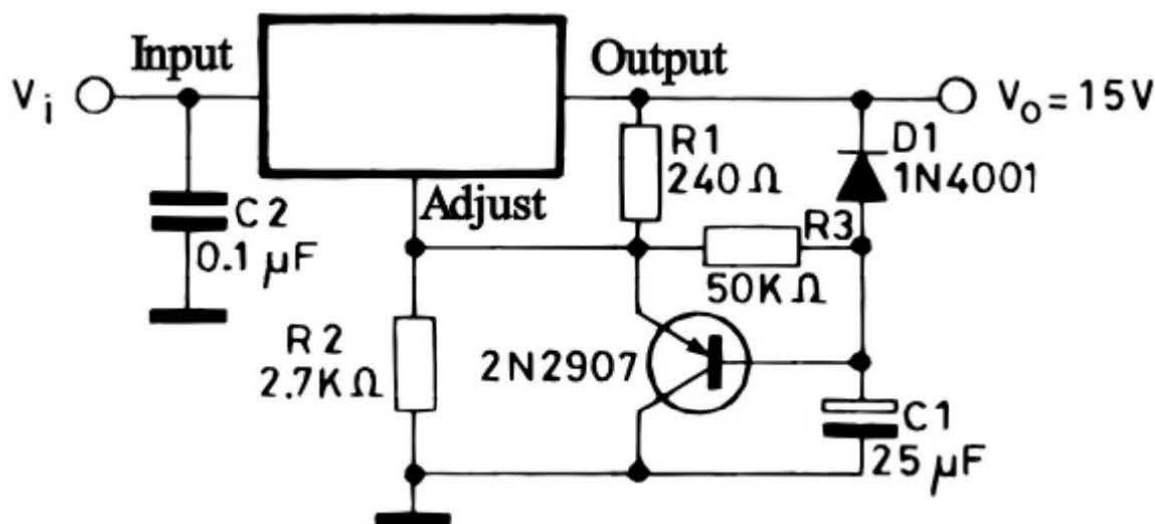
Characteristics	Test conditions	Symbol	Min .	Typ .	Max .	Unit
Reference voltage	$10\text{ mA} \leq I_{OUT} \leq 1.5\text{ A}$ $3\text{ V} \leq (V_{IN}-V_{OUT}) \leq 37\text{ V}$ $PD \leq 20\text{ W}$	V_{REF}	1.20	1.25	1.30	V
Line regulation	$3\text{ V} \leq V_{IN}-V_{OUT} \leq 37\text{ V}$	S_V		0.01	0.04	% / V
Load regulation	$0\text{ mA} \leq I_{OUT} \leq 1.5\text{ A}$	S_I		0.2	0.4	%
Adjust pin current		I_{adj}		50	100	μA
Adjust pin current change	$3\text{ V} \leq V_{IN}-V_{OUT} \leq 37\text{ V}$, $10\text{ mA} \leq I_{OUT} \leq 1.5\text{ A}$, $PD \leq 20\text{ W}$	ΔI_{adj}		0.2	5.0	μA
Minimum load current	$V_{IN}-V_{OUT}=37\text{ V}$	I_{Lmin}		3.5	10.0	mA
Ripple rejection	$f=120\text{ Hz}$, $C_{OUT}=1\mu\text{F}$ tantalum, $(V_{IN}-V_{OUT})=3\text{ V}$, $I_{OUT}=1.5\text{ A}$	RR	60	75		dB
Temperature stability	$T_{MIN} \leq T_J \leq T_{MAX}$			0.7		%
RMS output noise (% of V_{OUT})	$T_a=25^\circ\text{C}$, $10\text{ Hz} \leq f \leq 10\text{ kHz}$	en		0.003		%
Thermal resistance , Junction to case	SOT-223 TO-252 TO-220 TO-263	θ_{JC}		23 12 5 5		$^\circ\text{C} / \text{W}$
Thermal resistance , Junction to Ambient	SOT-223 TO-252 TO-220 TO-263	θ_{JA}		165 112 54 65		$^\circ\text{C} / \text{W}$
Thermal shutdown hysteresis		Thys		25		$^\circ\text{C}$

* : Maximum Power Dissipation is Package Type and Case Temperature dependent .

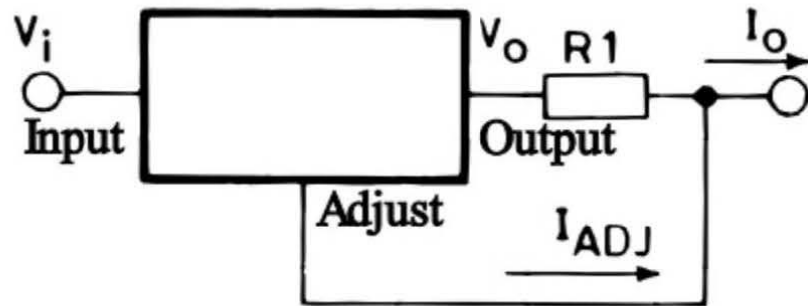
Application Information



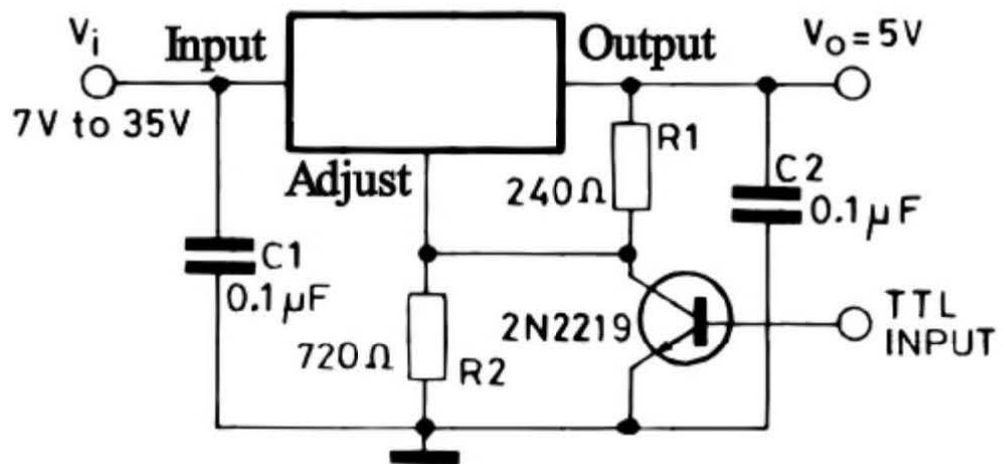
Voltage regulator with protection diodes



Slow turn-on 15 V regulator

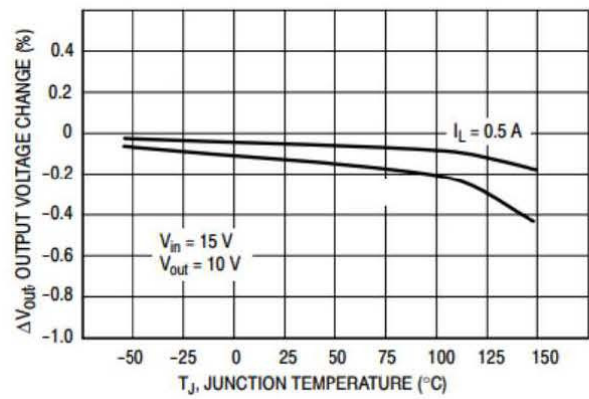


Current regulator

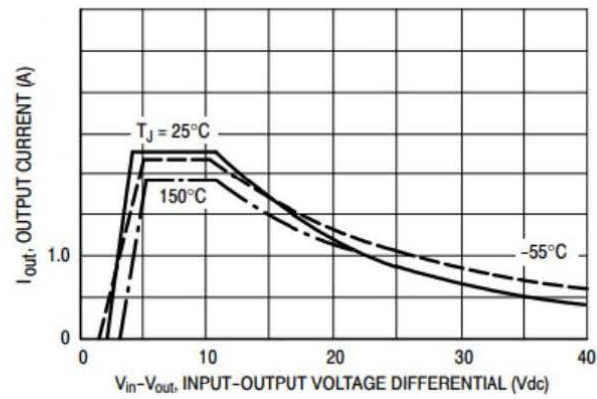


5 V electronic shut-down regulator

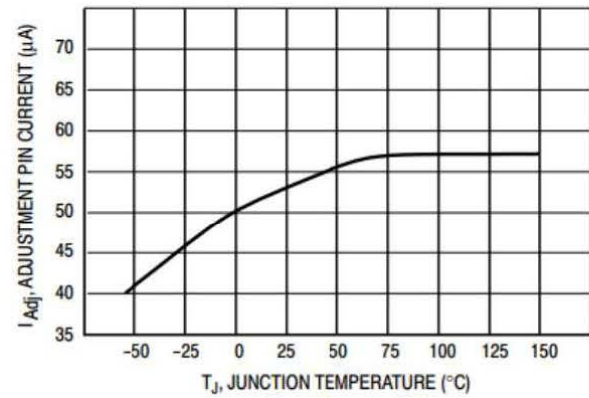
Characteristics Curves



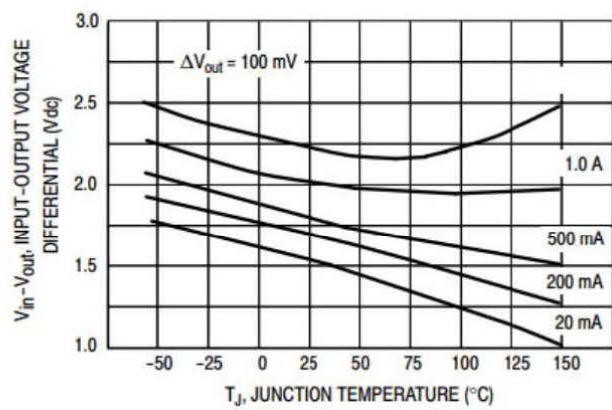
Load Regulation



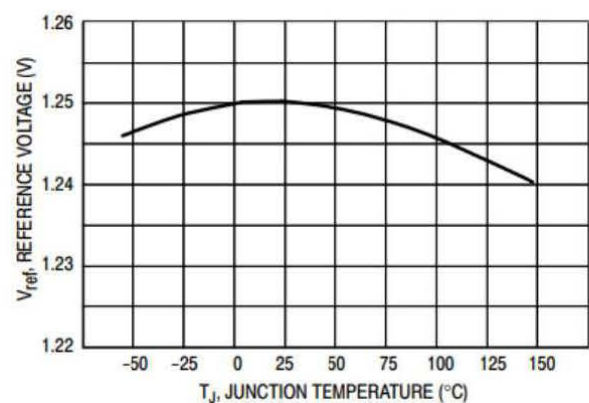
Current Limit



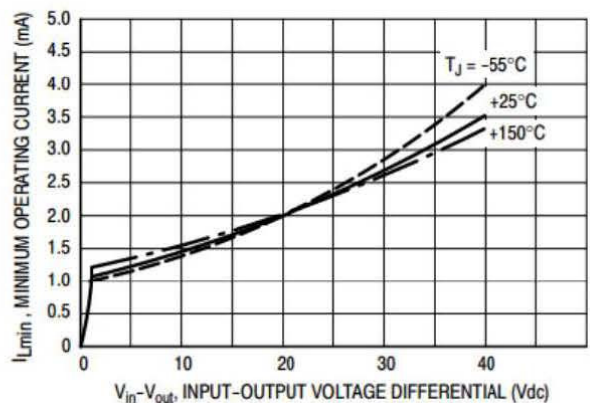
Adjustment Pin Current



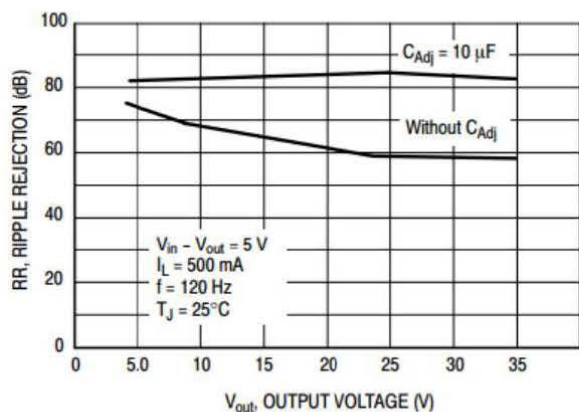
Dropout Voltage



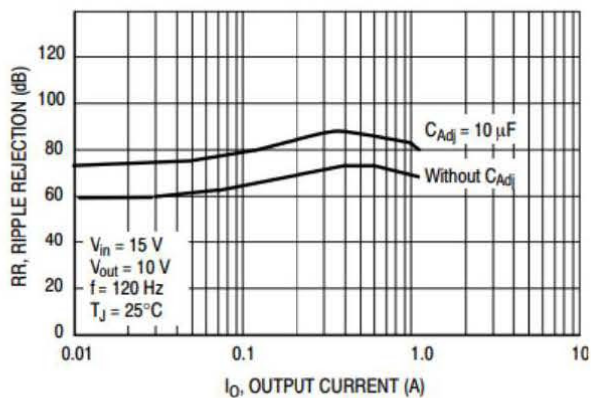
Temperature Stability



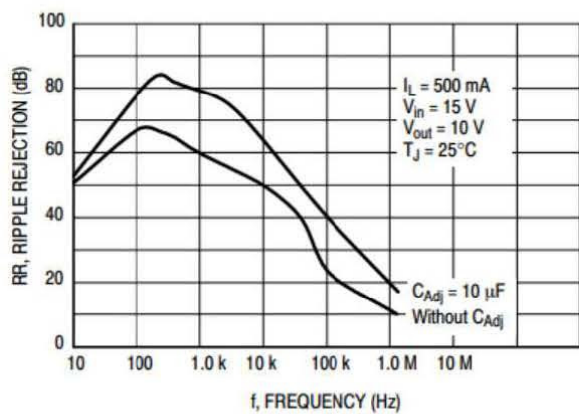
Minimum Operating Current



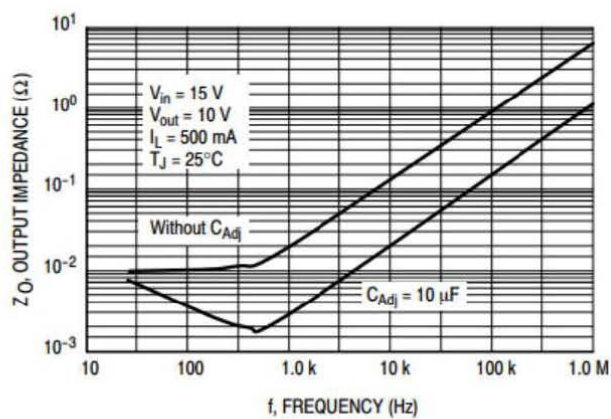
Ripple Rejection versus Output Voltage



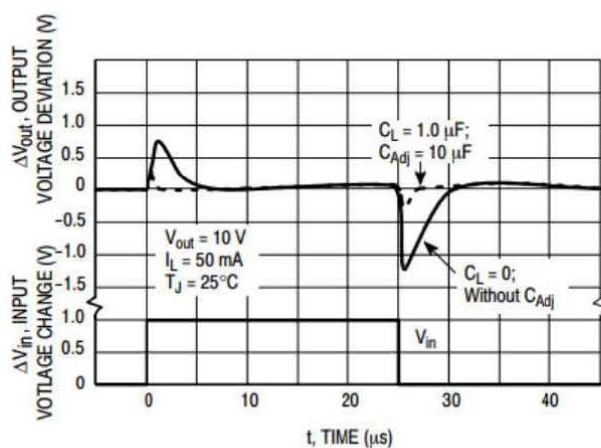
Ripple Rejection versus output Current



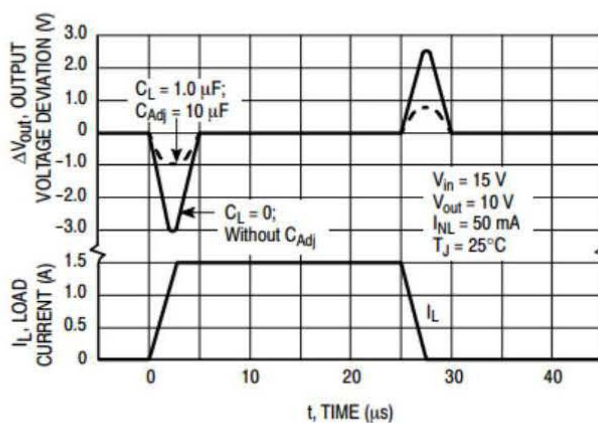
Ripple Rejection versus Frequency



Output Impedance



Line Transient Response

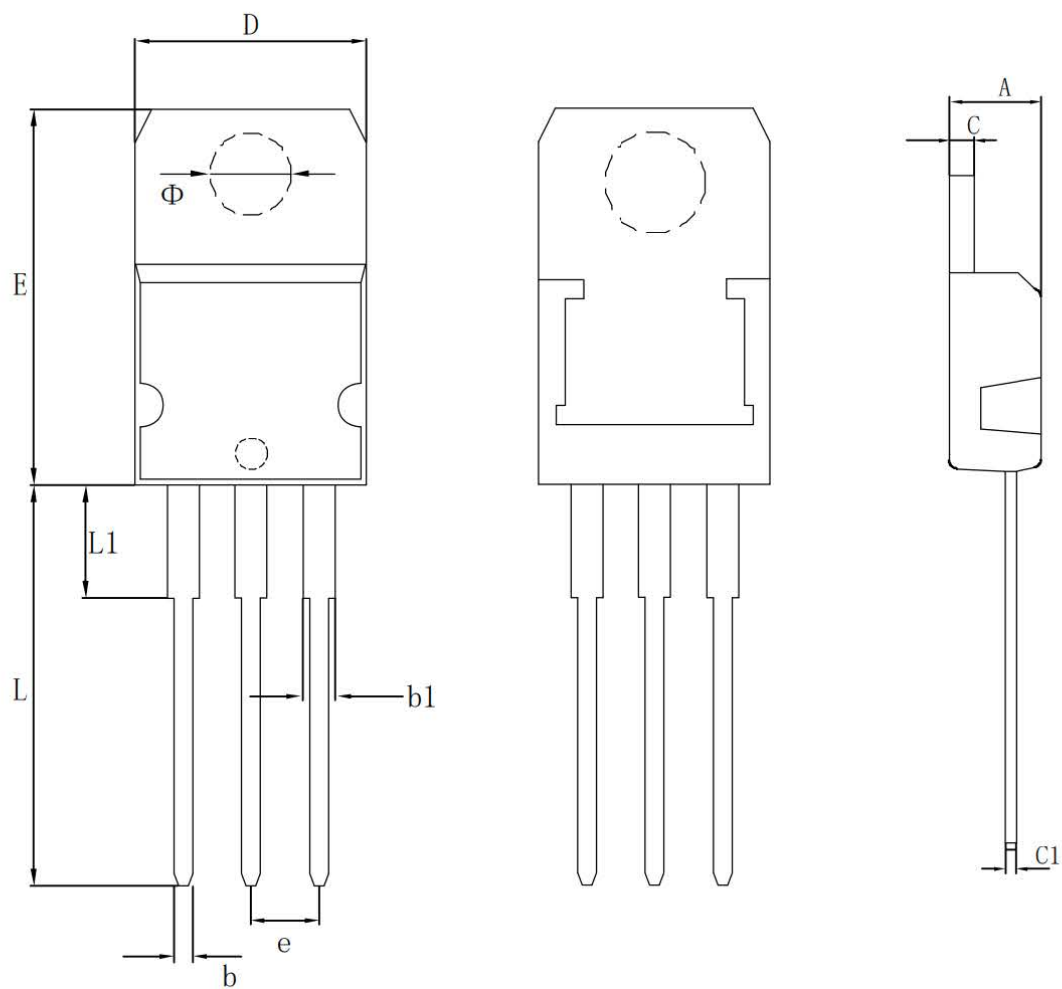


Load Transient Response

Package Information

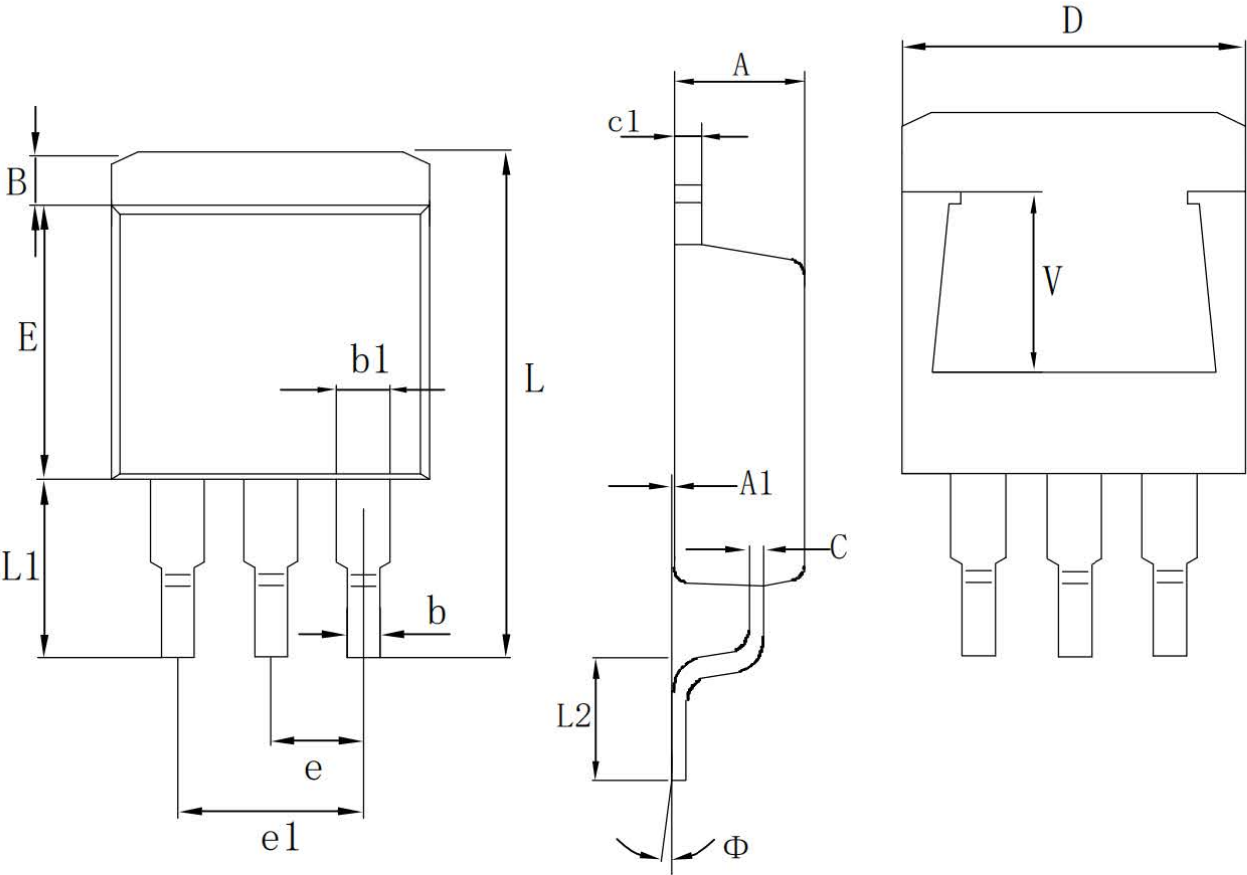
· T0-220

Symbol \ Size	Dimensions In Millimeters		Symbol \ Size	Dimensions In Inches	
	Min (mm)	Max (mm)		Min (in)	Max (in)
A	4.150	4.250	A	0.163	0.167
C	0.985	1.015	C	0.039	0.040
C1	0.365	0.395	C1	0.014	0.016
D	10.03	10.10	D	0.395	0.398
E	15.02	15.75	E	0.591	0.620
Φ	3.700	3.900	Φ	0.146	0.154
e	2.540 (TYP)		e	0.100 (TYP)	
b	0.770	0.830	b	0.030	0.033
b1	1.230	1.290	b1	0.048	0.051
L	13.00	14.00	L	0.512	0.551
L1	3.500	3.900	L1	0.138	0.154



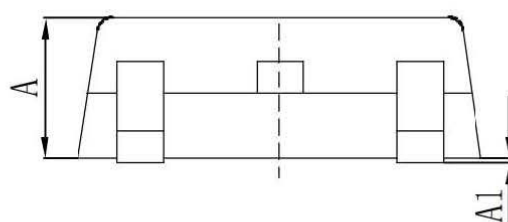
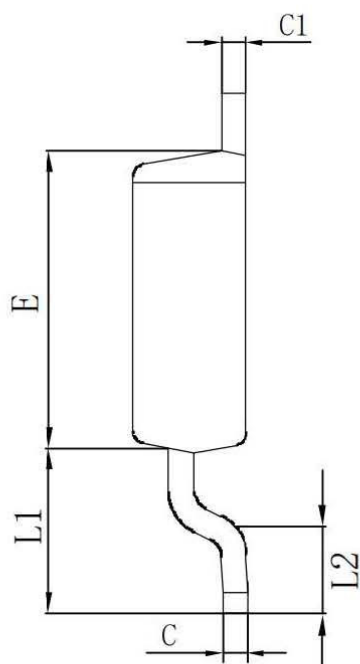
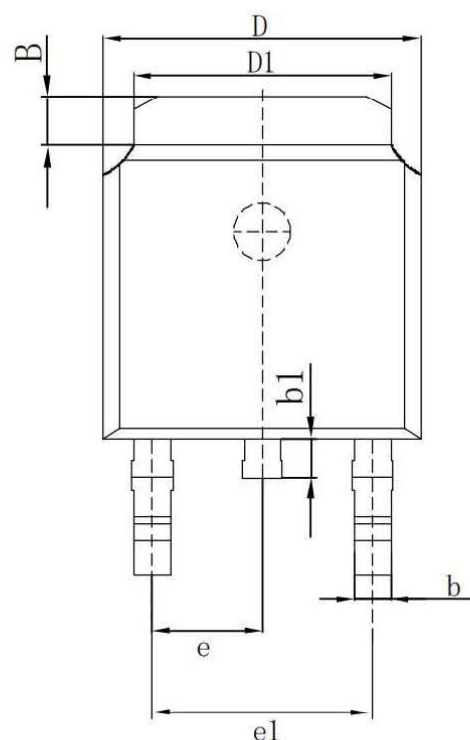
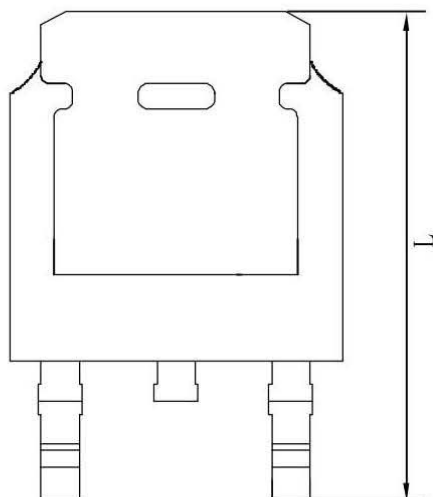
· T0-263-3L

Dimensions In Millimeters			Dimensions In Inches		
Symbol	Min (mm)	Max (mm)	Symbol	Min (in)	Max (in)
A	4.470	4.670	A	0.176	0.184
A1	0.000	0.150	A1	0.000	0.006
B	1.120	1.420	B	0.044	0.056
b	0.710	0.910	b	0.028	0.036
b1	1.170	1.370	b1	0.046	0.054
c	0.310	0.530	c	0.012	0.021
c1	1.170	1.370	c1	0.046	0.054
D	10.01	10.31	D	0.394	0.406
E	8.700	9.400	E	0.343	0.370
e	2.540 (TYP)		e	0.100 (TYP)	
e1	4.980	5.180	e1	0.196	0.204
L	14.94	15.50	L	0.588	0.610
L1	4.950	5.450	L1	0.195	0.215
L2	2.340	2.740	L2	0.092	0.860
V	5.600 (REF)		V	0.220 (REF)	
Φ	0°	8°	Φ	0°	8°



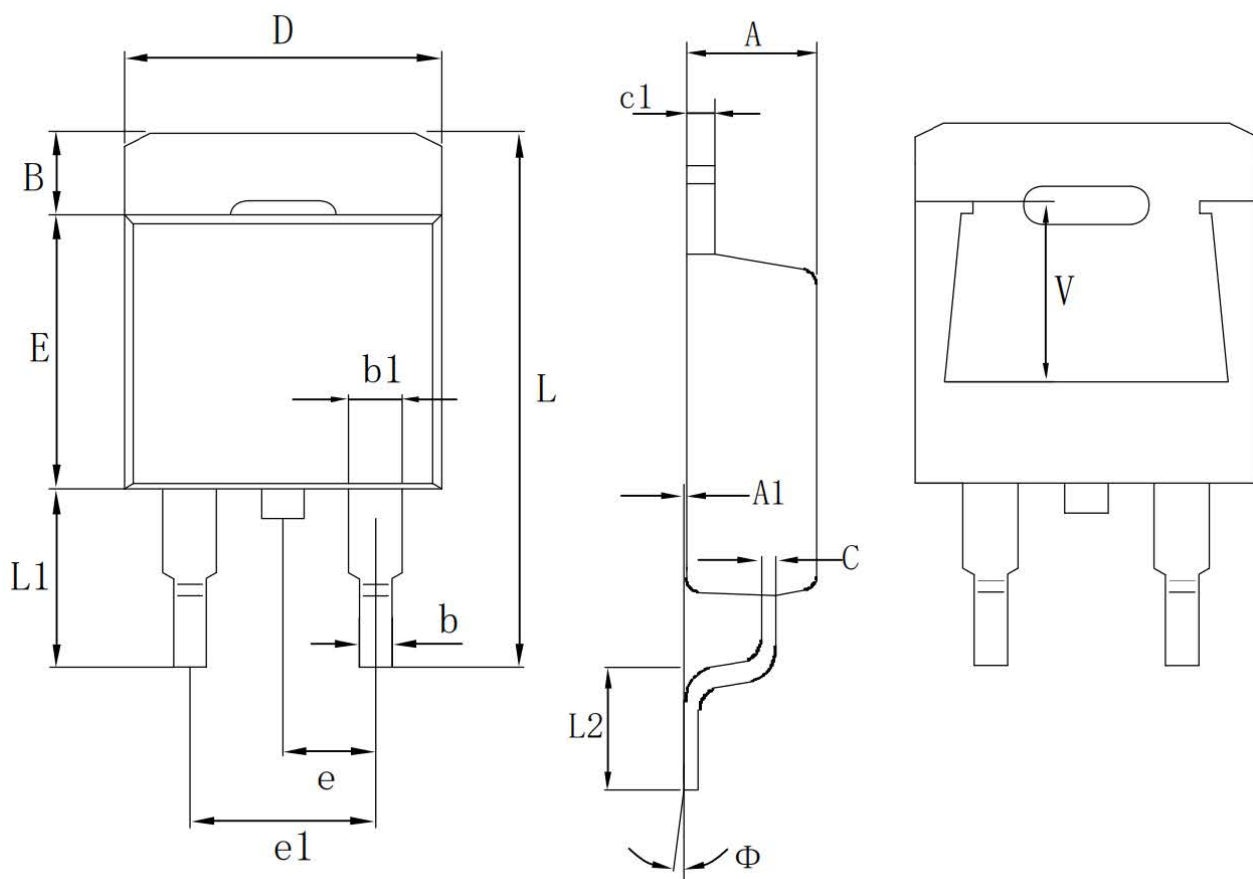
· T0-252-2L

Size Symbol	Dimensions In Millimeters		Size Symbol	Dimensions In Inches	
	Min (mm)	Max (mm)		Min (mm)	Max (mm)
A	2.200	2.400	A	0.087	0.094
A1	0.000	0.127	A1	0.000	0.005
B	1.350	1.650	B	0.053	0.065
b	0.500	0.700	b	0.020	0.028
b1	0.700	0.900	b1	0.028	0.035
c	0.430	0.580	c	0.017	0.023
c1	0.430	0.580	c1	0.017	0.023
D	6.350	6.500	D	0.250	0.262
D1	5.200	5.400	D1	0.205	0.213
E	5.400	5.700	E	0.213	0.224
e	2.300 (TYP)		e	0.091 (TYP)	
e1	4.500	4.700	e1	0.177	0.185
L	9.500	9.900	L	0.374	0.390
L1	2.550	2.900	L1	0.100	0.114
L2	1.400	1.780	L2	0.055	0.070



• T0-263-2L

Symbol	Size	Dimensions In Millimeters		Symbol	Size	Dimensions In Inches	
		Min (mm)	Max (mm)			Min (in)	Max (in)
A		4.470	4.670	A		0.176	0.184
A1		0.000	0.150	A1		0.000	0.006
B		1.120	1.420	B		0.044	0.056
b		0.710	0.910	b		0.028	0.036
b1		1.170	1.370	b1		0.046	0.054
c		0.310	0.530	c		0.012	0.021
c1		1.170	1.370	c1		0.046	0.054
D		10.01	10.31	D		0.394	0.406
E		8.700	9.400	E		0.343	0.370
e		2.540 (TYP)		e		0.100 (TYP)	
e1		4.980	5.180	e1		0.196	0.204
L		14.94	15.50	L		0.588	0.610
L1		4.950	5.450	L1		0.195	0.215
L2		2.340	2.740	L2		0.092	0.860
V		5.600 (REF)		V		0.220 (REF)	
Φ		0°	8°	Φ		0°	8°



• SOT-223

Size Symbol	Dimensions In Millimeters		Size Symbol	Dimensions In Inches	
	Min (mm)	Max (mm)		Min (in)	Max (in)
A		1.800	A		0.071
A1	0.020	0.100	A1	0.001	0.004
A2	1.500	1.700	A2	0.059	0.067
b	0.660	0.840	b	0.026	0.033
b1	2.900	3.100	b1	0.114	0.122
c	0.230	0.350	c	0.009	0.014
D	6.300	6.700	D	0.248	0.264
E	6.700	7.300	E	0.264	0.287
E1	3.300	3.700	E1	0.130	0.146
e	2.300 (BSC)		e	0.091 (BSC)	
L	0.750		L	0.030	
θ	0°	10°	θ	0°	10°

