DESCRIPTION

The A7812 is available in TO-252 and TO-263-3 packages.

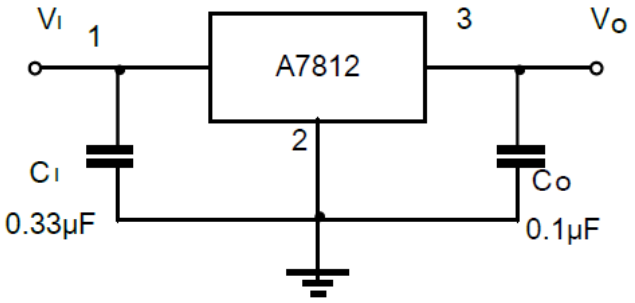
FEATURES

- Maximum output current I_{OM}: 1.5A
- Output voltage V_O: 12V
- Continuous total dissipation
  P_D: 1.25W(T_A=25°C)(TO-252)
  P_D: 1.5W(T_A=25°C)(TO-263)
- Available in TO-252 and TO-263-3 packages

ORDERING INFORMATION

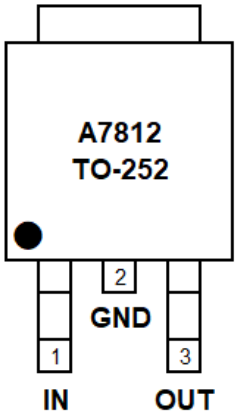
Package Type	Part Number	
TO-252 SPQ: 2,500pcs/Reel	D	A7812DR
		A7812DVR
TO-263-3 SPQ: 800pcs/Reel	S3	A7812S3R
		A7812S3VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

APPLICATION CIRCUIT

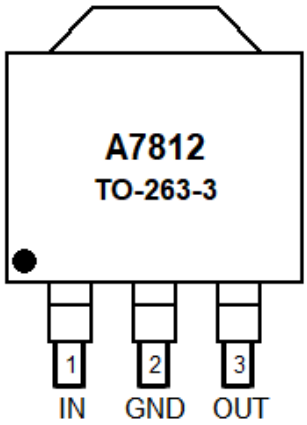


NOTE: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

PIN DESCRIPTION



Top View



Top View

Pin #		Symbol	Function
TO-252	TO-263-3		
1	1	IN	Input
2	2	GND	Ground
3	3	OUT	Output

ABSOLUTE MAXIMUM RATINGS

Operating temperature range applies unless otherwise specified

V_I, Input Voltage		35V
$R_{\theta JA}$, Thermal Resistance from Junction to Ambient	TO-252	80°C/W
	TO-263-3	66.7°C/W
T_{OPR}, Operating Junction Temperature Range		-40°C ~ +125°C
T_{STG}, Storage Temperature Range		-65°C ~ +150°C

Stress beyond above listed “Absolute Maximum Ratings” may lead permanent damage to the device. These are stress ratings only and operations of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

ELECTRICAL CHARACTERISTICS

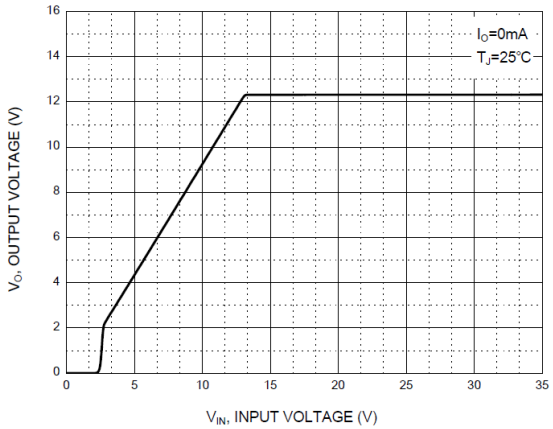
V_I=19V, Io=500mA, C_I=0.33μF, Co=0.1μF, unless otherwise specified

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Unit
Output Voltage	V_O		25℃	11.5	12.0	12.5	V
		14.5V≤V_I≤27V, Io=5mA~1A	-25~125℃	11.4	12.0	12.6	
Load Regulation	ΔV_O	Io=5mA~1.5A	25℃	-	10	240	mV
		Io=250mA~750mA	25℃	-	3	120	
Line Regulation	ΔV_O	14.5V≤V_I≤30V	25℃	-	12	240	mV
		16V≤V_I≤22V	25℃	-	4	120	
Quiescent Current	I_Q		25℃	-	4.3	8	mA
Quiescent Current Change	ΔI_Q	5.0mA≤I_O≤1.0A	-25~125℃	-	-	0.5	mA
		14.5V≤V_I≤30V	-25~125℃	-	-	1.0	
Output Voltage Drift	ΔVo/ΔT	I_O=5mA	-25~125℃	-	-1	-	mV/℃
Output Noise Voltage	V_N	f =10Hz to 100kHz	25℃	-	75	-	μV/Vo
Ripple Rejection	RR	15V≤V_I≤25V, f=120Hz	-25~125℃	55	71	-	dB
Dropout Voltage	Vd	I_O=1.0A	25℃	-	2	-	V
Output Resistance	R_O	f = 1kHz	-25~125℃	-	18	-	mΩ
Short Circuit Current	I_{SC}		25℃	-	350	-	mA
Peak Current	I_{PK}		25℃	-	2.2	-	A

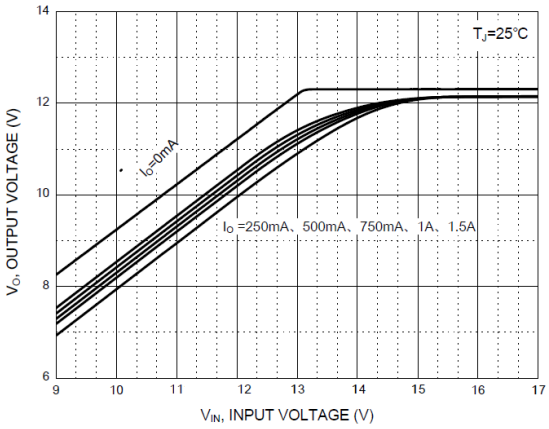
NOTE: Pulse test.

TYPICAL PERFORMANCE CHARACTERISTICS

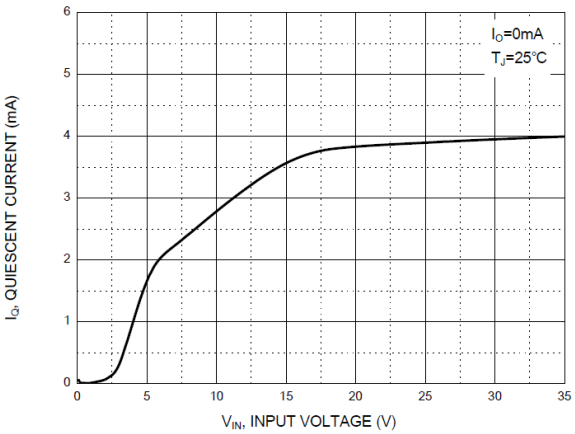
1. Output Characteristics



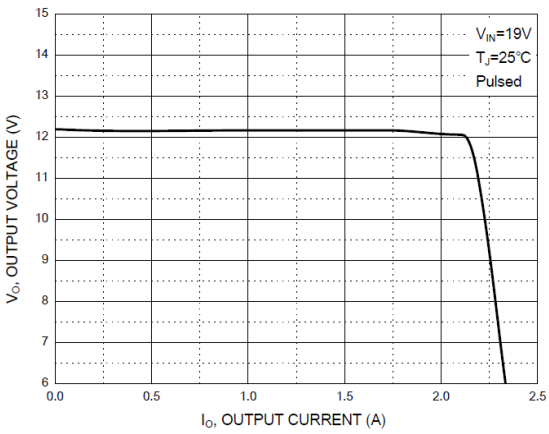
2. Dropout Characteristics



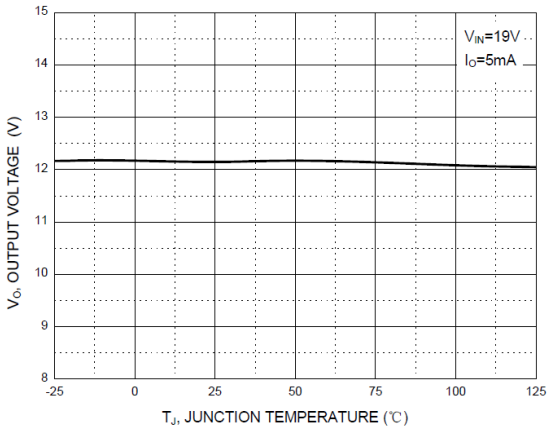
3. Quiescent Current vs. Input Voltage



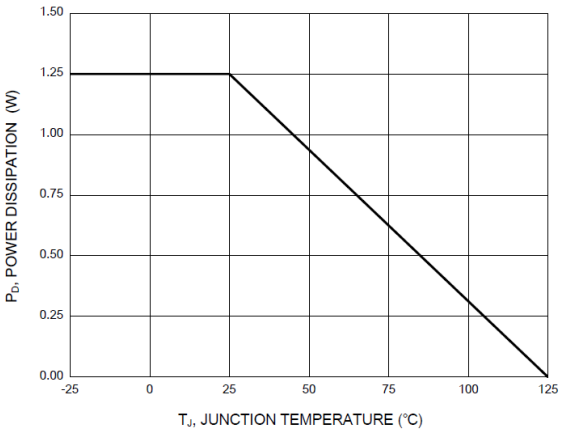
4. Current Cut-off Grid Voltage



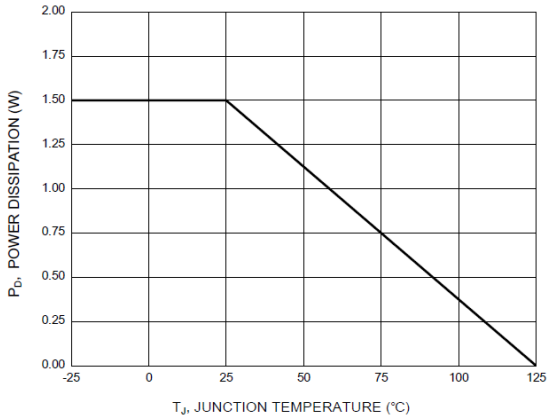
5. Output Voltage vs. Junction Temperature



6. Power Derating Curve(TO-252)

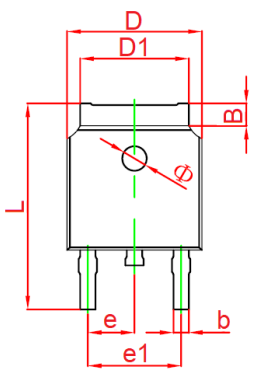


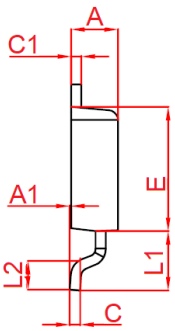
7. Power Derating Curve(TO-263-3)

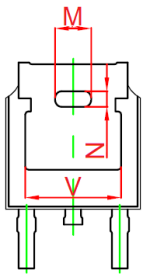


PACKAGE INFORMATION

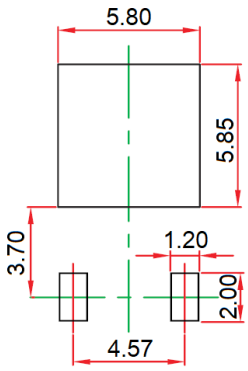
Dimension in TO-252 Package (Unit: mm)





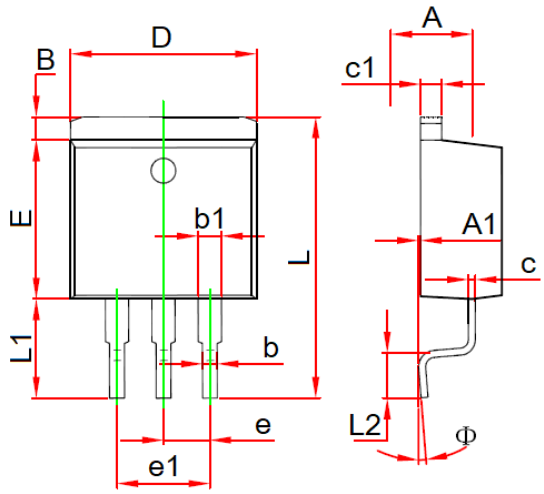


Suggested Pad Layout

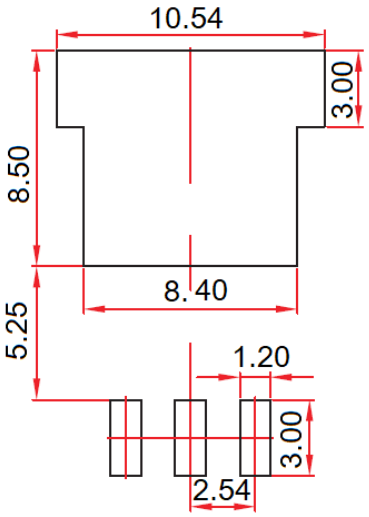


Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	2.200	2.380	0.087	0.094
A1	0.000	0.100	0.000	0.004
B	0.800	1.400	0.031	0.055
b	0.710	0.810	0.028	0.032
C	0.460	0.560	0.018	0.022
C1	0.460	0.560	0.018	0.022
D	6.500	6.700	0.256	0.264
D1	5.130	5.460	0.202	0.215
E	6.000	6.200	0.236	0.244
e	2.286 TYP.		0.090 TYP.	
e1	4.327	4.727	0.170	0.186
M	1.778 REF.		0.070 REF.	
N	0.762 REF.		0.018 REF.	
L	9.800	10.400	0.386	0.409
L1	2.9 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
V	4.830 REF.		0.190 REF.	
Φ	1.100	1.300	0.043	0.051

Dimension in TO-263 Package (Unit: mm)



Suggested Pad Layout



Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	4.470	4.670	0.176	0.184
A1	0.000	0.150	0.000	0.006
B	1.120	1.420	0.044	0.056
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
e	2.540 TYP.		0.100 TYP.	
e1	4.980	5.180	0.196	0.204
L	14.940	15.500	0.588	0.610
L1	4.950	5.450	0.195	0.215
L2	2.340	2.740	0.092	0.108
Φ	0°	8°	0°	8°
V	5.600 REF.		0.220 REF.	

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