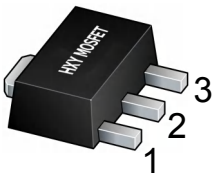
FEATURES

- Available Output Voltage:9.0V
- Maximum Input Voltage:
  30V for V_{OUT} < 10V
- Maximum Output Current:
  Exceed 100mA at T_J = 25°C
- Output Tolerances:
  ±3% at T_J = 25°C
  ±5% over the Operating T_J
- No External Components

Applications

- TV Board
- Air Conditioner
- Vehicle Mounted Radar
- Charging Device



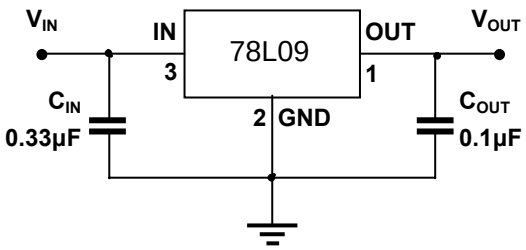
- 1: OUT
- 2: GND
- 3: IN

SOT-89

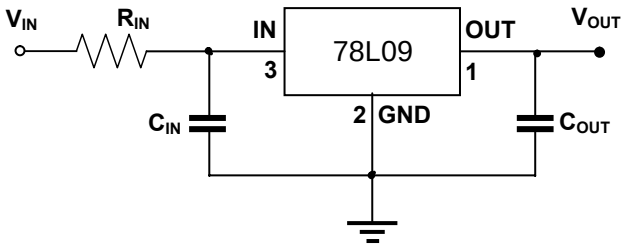
Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
78L09	SOT-89	78L09	1000

Typical Application Circuit



Conventional Circuit



Resistance are used at IN

Absolute Maximum Ratings

CHARACTERISTIC	SYMBOL	VALUE	UNIT
Maximum input voltage	V_{IN}	30	V
Maximum junction temperature	$T_{J\ Max}$	150	°C
Storage temperature	T_{stg}	- 65 ~ 150	°C
Soldering temperature & time	T_{solder}	260°C, 10s	-

Electrical Characteristics (continued)

78L09 (V_{OUT} = 9.0V, V_{IN} = 16V, I_{OUT} = 40mA, C_{IN} = 0.33μF, C_{OUT} = 0.1μF, T_J = 25°C, unless otherwise specified)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.(1)	MAX.	UNIT
Input voltage	V_{IN}	-	-	-	30	V
Output voltage	V_{OUT}	T_J = 25°C	8.73	9.00	9.27	V
		V_{IN} = 12 to 24V, I_{OUT} = 1 to 40mA	8.55	9.00	9.45	
		I_{OUT} = 1 to 70mA	8.55	9.00	9.45	
Output current	I_{OUT}	T_J = 25°C	100	-	-	mA
Quiescent current	I_Q	I_{OUT} = 0mA	-	4.1	6.0	mA
Quiescent current change	ΔI_Q	V_{IN} = 13 to 24V	-	-	1.5	mA
		I_{OUT} = 1 to 40mA	-	-	0.1	mA
Dropout voltage	V_{DO}(2)	T_J = 25°C	-	1.7	-	V
Line regulation	ΔV_{LINE}	V_{IN} = 12 to 24V, T_J = 25°C	-	45	175	mV
		V_{IN} = 13 to 24V, T_J = 25°C	-	40	125	
Load regulation	ΔV_{LOAD}	I_{OUT} = 1 to 100mA, T_J = 25°C	-	19	90	mV
		I_{OUT} = 1 to 40mA, T_J = 25°C	-	11	40	
Output noise voltage	V_N	f = 10 to 100kHz, T_J = 25°C	-	58	-	μV/V_{OUT}
Ripple rejection	RR	V_{IN} = 15 to 25V, f = 120Hz	37	45	-	dB

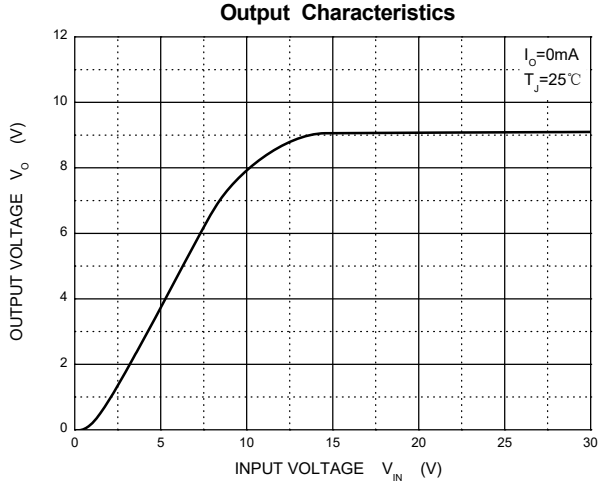
Note:

(1) Typical numbers are at 25°C (T_J) and represent the most likely norm.

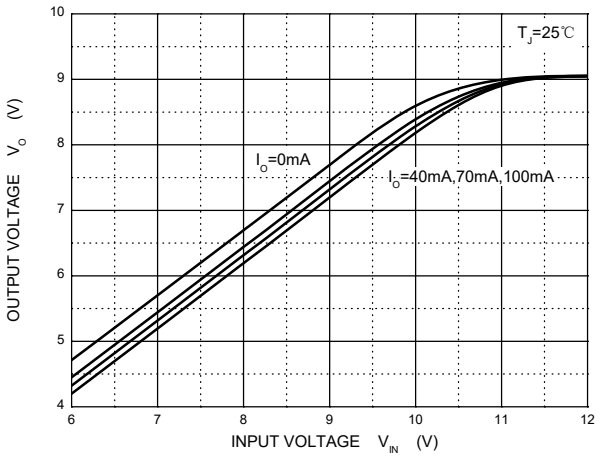
(2) Test the difference of output voltage and input voltage when input voltage is decreased gradually till output voltage equals to 95% of V_{OUT}.

Typical Characteristics

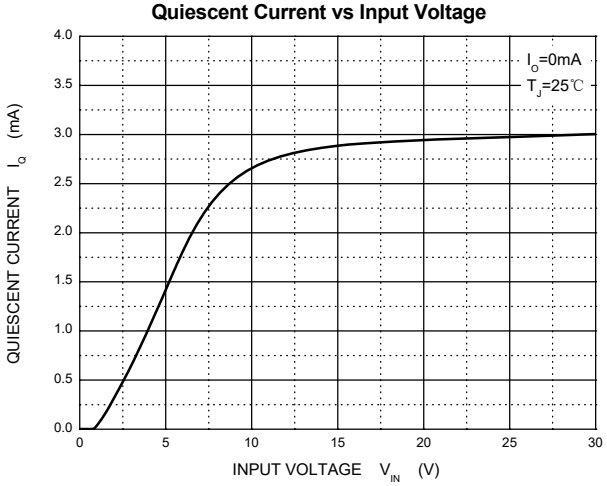
Output Characteristics



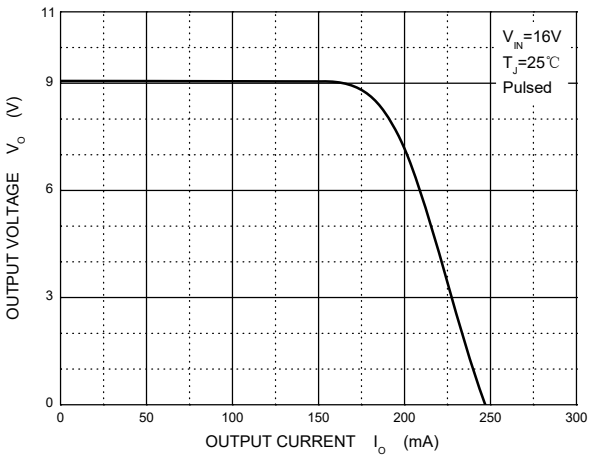
Dropout Characteristics



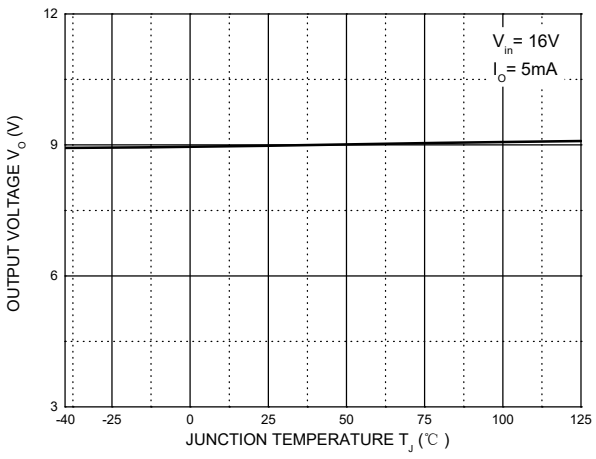
Quiescent Current vs Input Voltage



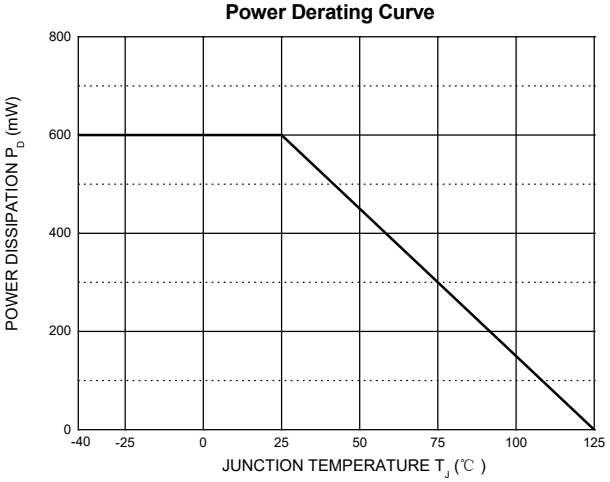
Current Cut-off Grid Voltage



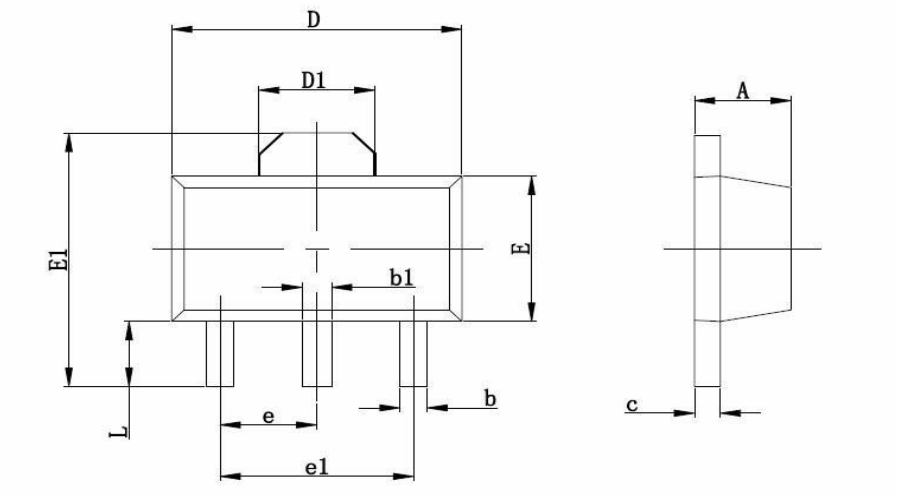
Output Voltage vs Junction Temperature



Power Derating Curve



SOT-89 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047

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