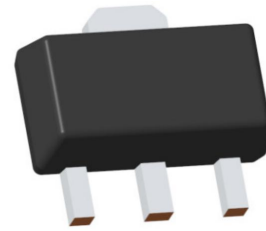
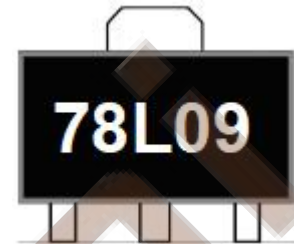


Features

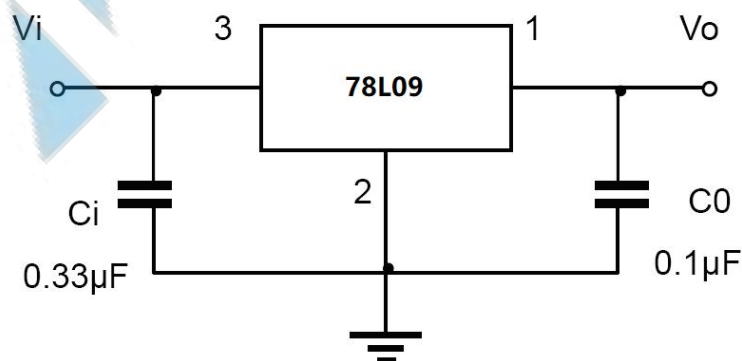
- Maximum output current IOM: 0.1A
- Output voltage Vo: 9V
- Continuous total dissipation PD: 0.6W (Ta=25°C)
- Moisture Sensitivity Level 3


Package Marking and Ordering Information

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

Absolute Maximum Ratings (Ta=25°C unless otherwise noted)

Parameters	Symbol	Value	Unit
Input Voltage	Vi	30	V
Operating Junction Temperature Range	TOPR	-25-+125	°C
Storage Temperature Range	Tstg	-65-+150	°C
Thermal Resistance from Junction to Ambient	RθJA	166.7	°C/W

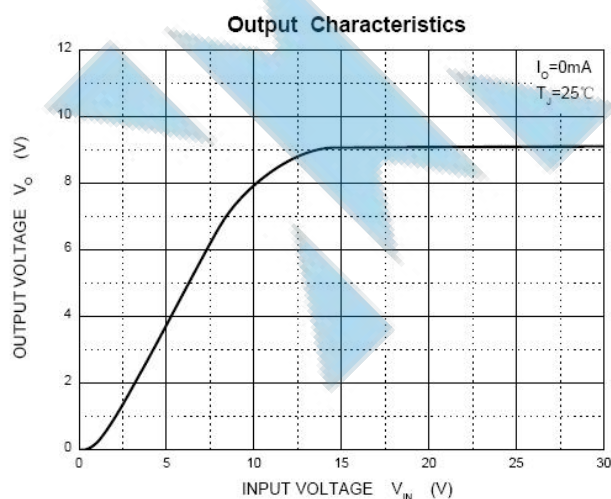
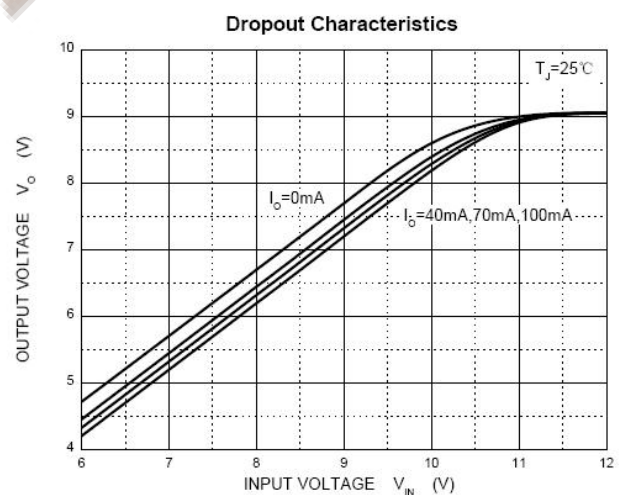
TYPICAL APPLICATION


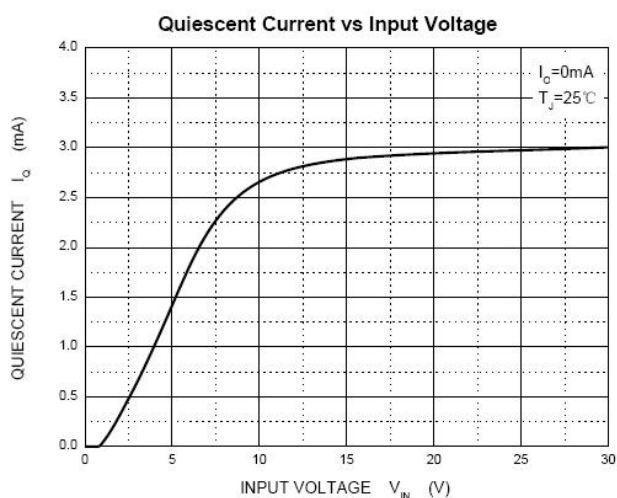
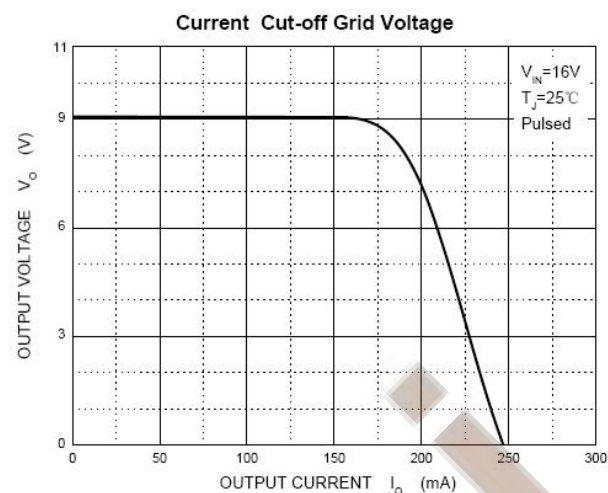
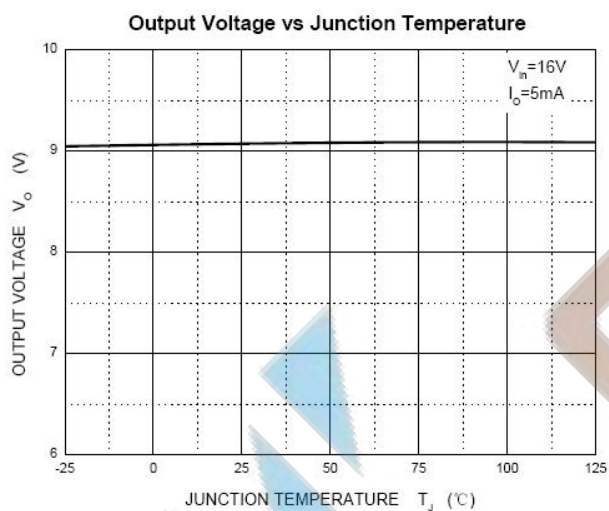
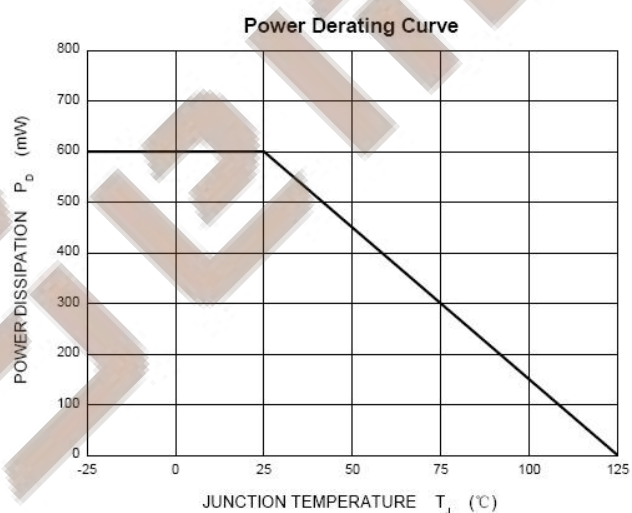
Note: Bypass capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators.

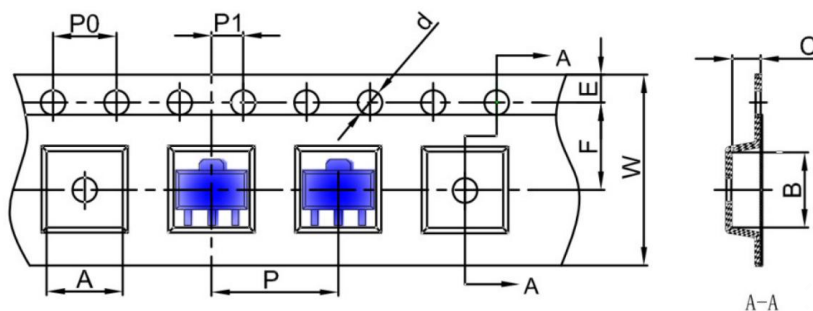
Electrical Characteristics(Ta=25°C unless otherwise noted)

(Vi=10V, Io=40mA, Ci=0.33uF, Co=0.1uF, unless otherwise specified).

Parameter	Symbol	Test Conditions		Limits			Unit
				Min.	Typ.	Max.	
Output Voltage	Vo		25°C	8.73	9.0	9.27	V
		12V≤Vi≤24V, Io=1mA~40mA	0~125°C	8.55	9.0	9.45	V
		Io=1mA~70mA		8.55	9.0	9.45	V
Load Regulation	ΔVo	Io=1mA~100mA	25°C		19	90	mV
		Io=1mA~40mA	25°C		11	40	mV
Line Regulation	ΔVo	12V≤Vi≤24V	25°C		45	175	mV
		13V≤Vi≤24V	25°C		40	125	mV
Quiescent Current	Iq		25°C		4.1	6	mA
Quiescent Current Change	ΔIq	13V≤Vi≤24V	0~125°C			1.5	mA
	ΔIq	1mA≤Vi≤40mA	0~125°C			0.1	mA
Output Noise Voltage	VN	10Hz≤f≤100KHz	25°C	58			uV/Vo
Ripple Rejection	RR	15V≤Vi≤25V,f=120Hz	0~125°C		45		dB
Dropout Voltage	Vd		25°C		1.7		V

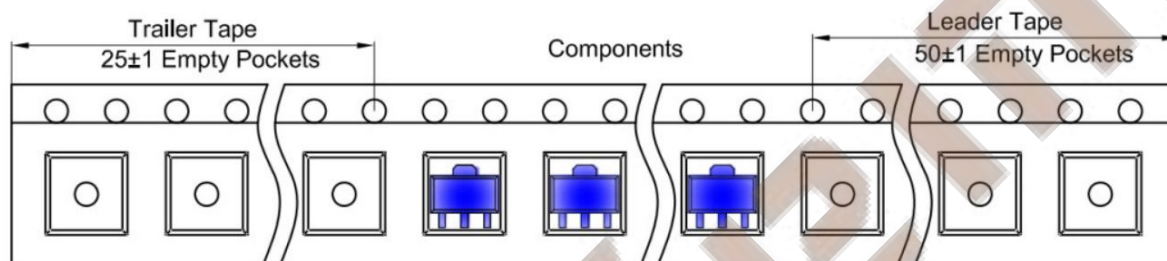
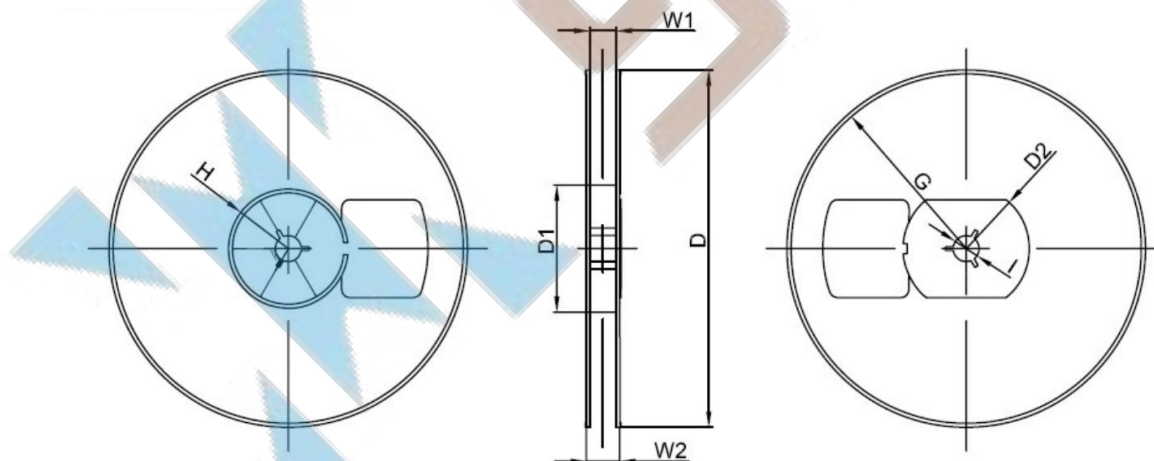
Typical characteristics




Package Information
Carrier Dimension(mm)


Dimensions are in millimeter

Pkg Type	A	B	C	d	E	F	P0	P	P1	W
SOT-89-3L	4.85	4.45	1.85	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00
(Tolerance)	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	+0.3/-0.1


Reel Dimension(mm)


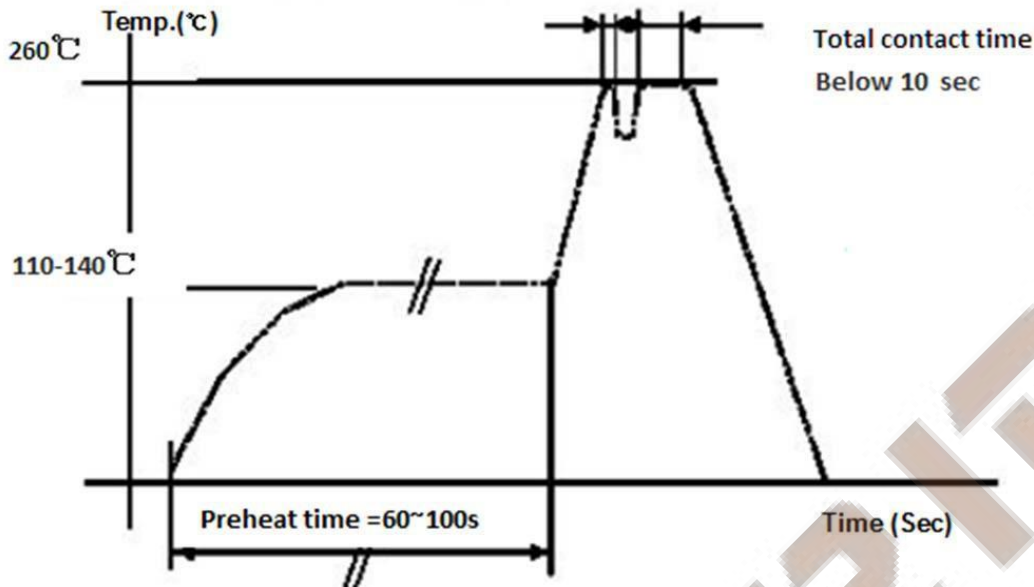
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Φ180.00	60.00	R32.00	R86.50	R30.00	Φ13.00	13.20	16.50
Tolerance	±2	±1	±1	±1	±1	±1	±1	±1

Package Specifications

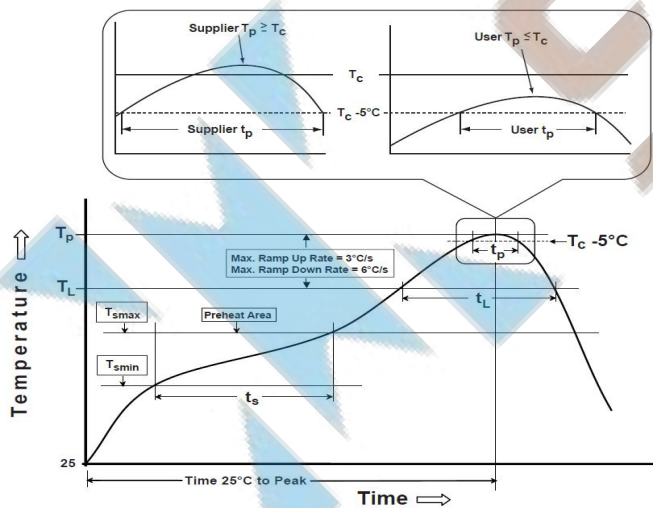
Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (Kpcs)	Box Size (mm)	QTY/Box (Kpcs)	Carton Size (mm)	Q'TY/Carton (Kpcs)
SOT89	7'	178	1	210*208*203	10	440*400*230	40

Recommended Soldering Profile for Rectifier Diodes (Pb Free)

a) Wave Soldering Profile



b) Reflow Soldering Profile (Pb Free Application), refer to IPC/JEDEC J-STD-020

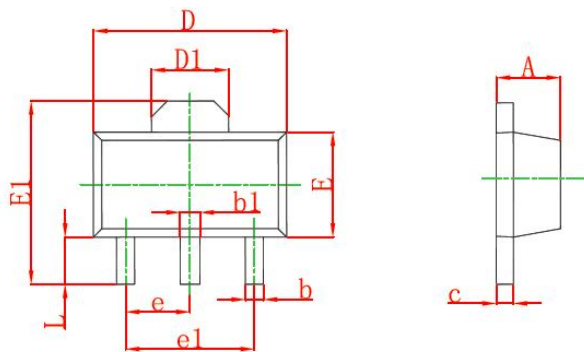


Preheat/Soak Temperature Min (T _{smin}) Temperature Max (T _{smax}) Time (ts) from (T _{smin} to T _{smax})	50 °C 200 °C 60-120 seconds
Melting Point of Solder (Sn Ag Cu)	217°C
Ramp-up Rate to 217°C(Melting Point of Solder)	3°C/sec
Time at Temp.>217°C (Melting Point of Solder)	60~150 Sec
Peak Temperature	255±5°C
Time within 5°Cbelow Peak Temp.	20~40 Sec
Cooling Rate	6°C/sec (max)
Time from 25°C to Peak Temp.	8min (max)

c) Manual Soldering

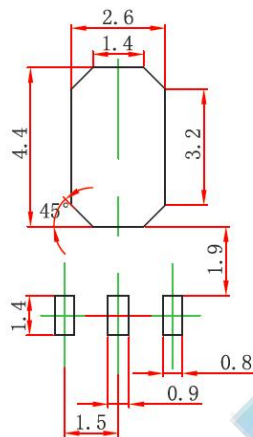
When using an electric soldering iron for manual soldering, it is recommended that the temperature does not exceed 300°C and the soldering time is less than 10 seconds.

Package Mechanical Data



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

Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

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