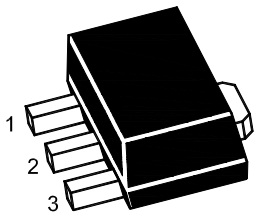
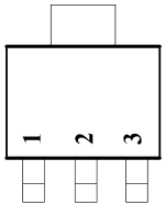
Description

The PJ75ALXXSQ series is a set of three-terminal low power high voltage regulators implemented in CMOS technology. They allow input voltages as high as 36V. They are available with several fixed output voltages ranging from 2.8V to 5.0V. Because of the low power dissipation, PJ75ALXXSQ are widely used in a variety of equipment such as audio device, video device, communication device and so on.

SOT-89





GND VIN VOUT

Pin assignment

Features

- **Low power consumption**
- **Low voltage drop**
- **Low temperature coefficient**
- **High input voltage (up to 36V)**
- **Quiescent current : 2.5μA**
- **Output voltage tolerance: ±2%**
- **HAF(halogen and antimony free) is acquired**

Selection Tablet PJ75ALXXSQ

Designator	Symbol	Description
XX	28	2.8V(output)
	30	3.0V
	33	3.3V
	36	3.6V
	40	4.0V
	44	4.4V
	50	5.0V

Absolute Maximum Ratings(NOTE1)

Ratings at 25℃ ambient temperature unless otherwise specified.

Parameter	Limit	Unit
Supply voltage	-0.3 ~ +36	V
Storage temperature range	-50 ~ +125	℃
Operating temperature range	-40 ~ +85	℃

NOTE: 1.Stresses beyond those listed under absolute maximum ratings may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those conditions is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

Parameter	Symbol	Value	Unit
Junction-to-Ambient Thermal Resistance	$R_{\theta JA}$	200	℃/W
Power Consumption	P_D	500	mW

Electrical Characteristics

PJ75AL28SQ(T_A=25℃)

Parameter	Symbol	Test conditions	Min.	Typ.	Max	Unit
Output voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$, I_{OUT}=10mA	2.744	2.80	2.856	V
Output current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	70	100	—	mA
Load regulation	ΔV_{OUT}	$V_{IN}=V_{OUT}+2.0V$ $1mA \le I_{OUT} \le 50mA$	—	25	60	mV
Voltage drop Note1	V_{DIF}	I_{OUT}=1mA, ΔV_{OUT}=2%	—	30	100	mV
Quiescent Current	I_Q	No Load	—	2.5	3.0	μA
Line regulation	$\Delta V_{OUT} / V_{OUT} \times \Delta V_{IN}$	$V_{OUT}+1.0V \le V_{IN} \le 30V$, I_{OUT}=1mA	—	—	0.2	%/V
Input voltage	V_{IN}	—	—	—	36	V
Temperature coefficient	$\Delta V_{OUT} / V_{OUT} \times \Delta T_A$	$V_{IN}=V_{OUT}+2.0V$, I_{OUT}=10mA, $-40℃ \le T_A \le 85℃$	—	100	—	ppm/℃

PJ75AL30SQ(T_A=25℃)

Parameter	Symbol	Test conditions	Min.	Typ.	Max	Unit
Output voltage	V_{OUT}	V_{IN}=V_{OUT}+2.0V, I_{OUT}=10mA	2.940	3.00	3.060	V
Output current	I_{OUT}	V_{IN}=V_{OUT}+2.0V	70	100	—	mA
Load regulation	ΔV_{OUT}	V_{IN}=V_{OUT}+2.0V 1mA≤I_{OUT}≤50mA	—	25	60	mV
Voltage drop Note1	V_{DIF}	I_{OUT}=1mA, ΔV_{OUT}=2%	—	30	100	mV
Quiescent Current	I_Q	No Load	—	2.5	3.0	μA
Line regulation	ΔV_{OUT} / V_{OUT} ×ΔV_{IN}	V_{OUT}+1.0V≤V_{IN}≤30V, I_{OUT}=1mA	—	—	0.2	%/V
Input voltage	V_{IN}	—	—	—	36	V
Temperature coefficient	ΔV_{OUT} /V_{OUT} ×ΔT_A	V_{IN}=V_{OUT}+2.0V, I_{OUT}=10mA, -40℃≤T_A≤85℃	—	100	—	ppm/℃

PJ75AL33SQ(T_A=25℃)

Parameter	Symbol	Test conditions	Min.	Typ.	Max	Unit
Output voltage	V_{OUT}	V_{IN}=V_{OUT}+2.0V, I_{OUT}=10mA	3.234	3.30	3.366	V
Output current	I_{OUT}	V_{IN}=V_{OUT}+2.0V	70	100	—	mA
Load regulation	ΔV_{OUT}	V_{IN}=V_{OUT}+2.0V 1mA≤I_{OUT}≤50mA	—	25	60	mV
Voltage drop Note1	V_{DIF}	I_{OUT}=1mA, ΔV_{OUT}=2%	—	25	55	mV
Quiescent Current	I_Q	No Load	—	2.5	3.0	μA
Line regulation	ΔV_{OUT} / V_{OUT} ×ΔV_{IN}	V_{OUT}+1.0V≤V_{IN}≤30V, I_{OUT}=1mA	—	—	0.2	%/V
Input voltage	V_{IN}	—	—	—	36	V
Temperature coefficient	ΔV_{OUT} /V_{OUT} ×ΔT_A	V_{IN}=V_{OUT}+2.0V, I_{OUT}=10mA, -40℃≤T_A≤85℃	—	100	—	ppm/℃

PJ75AL36SQ(T_A=25℃)

Parameter	Symbol	Test conditions	Min.	Typ.	Max	Unit
Output voltage	V_{OUT}	V_{IN}=V_{OUT}+2.0V , I_{OUT}=10mA	3.528	3.60	3.672	V
Output current	I_{OUT}	V_{IN}=V_{OUT}+2.0V	70	100	—	mA
Load regulation	ΔV_{OUT}	V_{IN}=V_{OUT}+2.0V 1mA≤I_{OUT}≤50mA	—	25	60	mV
Voltage drop Note1	V_{DIF}	I_{OUT}=1mA, ΔV_{OUT}=2%	—	25	55	mV
Quiescent Current	I_Q	No Load	—	2.5	3.0	μA
Line regulation	ΔV_{OUT} / V_{OUT} ×ΔV_{IN}	V_{OUT}+1.0V≤V_{IN}≤30V, I_{OUT}=1mA	—	—	0.2	%/V
Input voltage	V_{IN}	—	—	—	36	V
Temperature coefficient	ΔV_{OUT} /V_{OUT} ×ΔT_A	V_{IN}= V_{OUT}+2.0V, I_{OUT}=10mA, -40℃≤T_A≤85℃	—	100	—	ppm/℃

PJ75AL40SQ(T_A=25℃)

Parameter	Symbol	Test conditions	Min.	Typ.	Max	Unit
Output voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$	3.920	4.0	4.080	V
Output current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	70	100	—	mA
Load regulation	ΔV_{OUT}	$V_{IN}=V_{OUT}+2.0V$ $1mA\leq I_{OUT}\leq 50mA$	—	25	60	mV
Voltage drop Note1	V_{DIF}	$I_{OUT}=1mA$, $\Delta V_{OUT}=2\%$	—	25	55	mV
Quiescent Current	I_Q	No Load	—	2.5	3.0	μA
Line regulation	$\Delta V_{OUT}/V_{OUT}\times\Delta V_{IN}$	$V_{OUT}+1.0V\leq V_{IN}\leq 30V$, $I_{OUT}=1mA$	—	—	0.2	%/V
Input voltage	V_{IN}	—	—	—	36	V
Temperature coefficient	$\Delta V_{OUT}/V_{OUT}\times\Delta T_A$	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$, $-40℃\leq T_A\leq 85℃$	—	100	—	ppm/℃

PJ75AL44SQ(T_A=25℃)

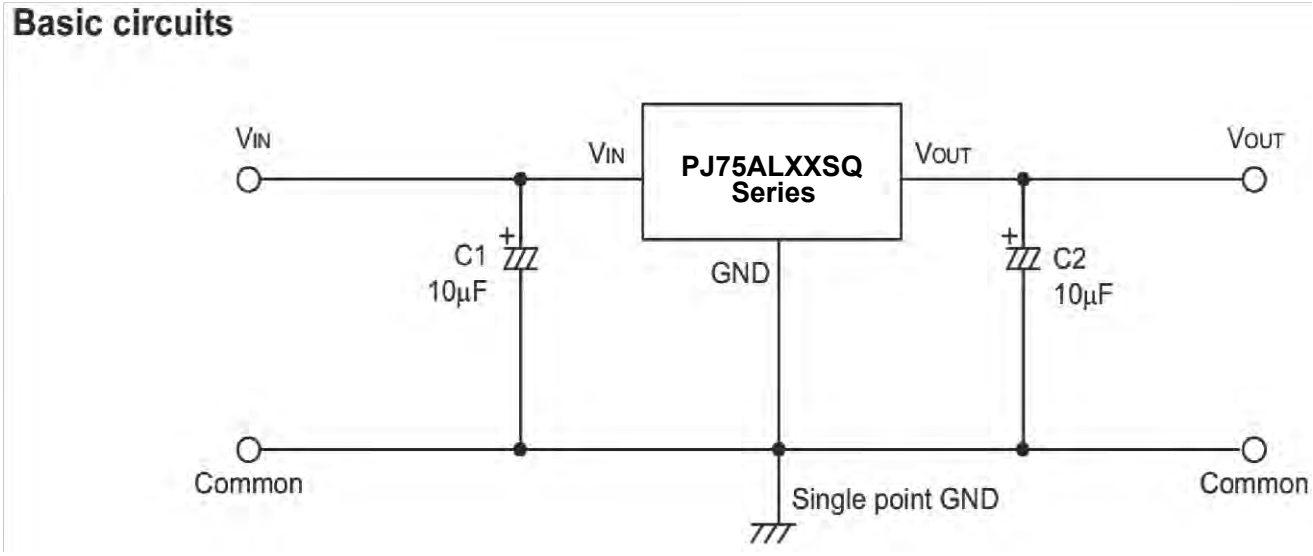
Parameter	Symbol	Test conditions	Min.	Typ.	Max	Unit
Output voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$	4.312	4.4	4.488	V
Output current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	70	100	—	mA
Load regulation	ΔV_{OUT}	$V_{IN}=V_{OUT}+2.0V$ $1mA\leq I_{OUT}\leq 50mA$	—	25	60	mV
Voltage drop Note1	V_{DIF}	$I_{OUT}=1mA$, $\Delta V_{OUT}=2\%$	—	25	55	mV
Quiescent Current	I_Q	No Load	—	2.5	3.0	μA
Line regulation	$\Delta V_{OUT}/V_{OUT}\times\Delta V_{IN}$	$V_{OUT}+1.0V\leq V_{IN}\leq 30V$, $I_{OUT}=1mA$	—	—	0.2	%/V
Input voltage	V_{IN}	—	—	—	36	V
Temperature coefficient	$\Delta V_{OUT}/V_{OUT}\times\Delta T_A$	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$, $-40℃\leq T_A\leq 85℃$	—	100	—	ppm/℃

PJ75AL50SQ(T_A=25℃)

Parameter	Symbol	Test conditions	Min.	Typ.	Max	Unit
Output voltage	V_{OUT}	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$	4.900	5.0	5.100	V
Output current	I_{OUT}	$V_{IN}=V_{OUT}+2.0V$	100	150	—	mA
Load regulation	ΔV_{OUT}	$V_{IN}=V_{OUT}+2.0V$ $1mA\leq I_{OUT}\leq 70mA$	—	25	60	mV
Voltage drop Note1	V_{DIF}	$I_{OUT}=1mA$, $\Delta V_{OUT}=2\%$	—	25	55	mV
Quiescent Current	I_Q	No Load	—	3.5	4.0	μA
Line regulation	$\Delta V_{OUT}/V_{OUT}\times\Delta V_{IN}$	$V_{OUT}+1.0\ V\leq V_{IN}\leq 30V$, $I_{OUT}=1mA$	—	—	0.2	%/V
Input voltage	V_{IN}	—	—	—	36	V
Temperature coefficient	$\Delta V_{OUT}/V_{OUT}\times\Delta T_A$	$V_{IN}=V_{OUT}+2.0V$, $I_{OUT}=10mA$, $-40℃\leq T_A\leq 85℃$	—	100	—	ppm/℃

NOTE: 1.The difference of input voltage and output voltage when input voltage falls down gradually till output voltage equals to 98% of rating V_{OUT} .

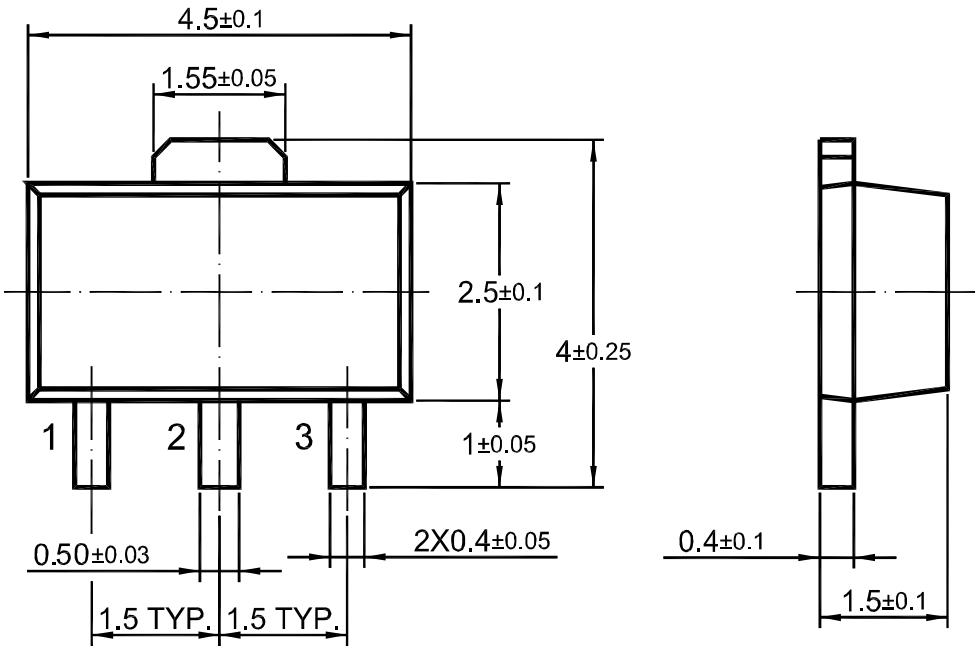
Application Circuit



Package Outline

SOT-89

Dimensions in mm

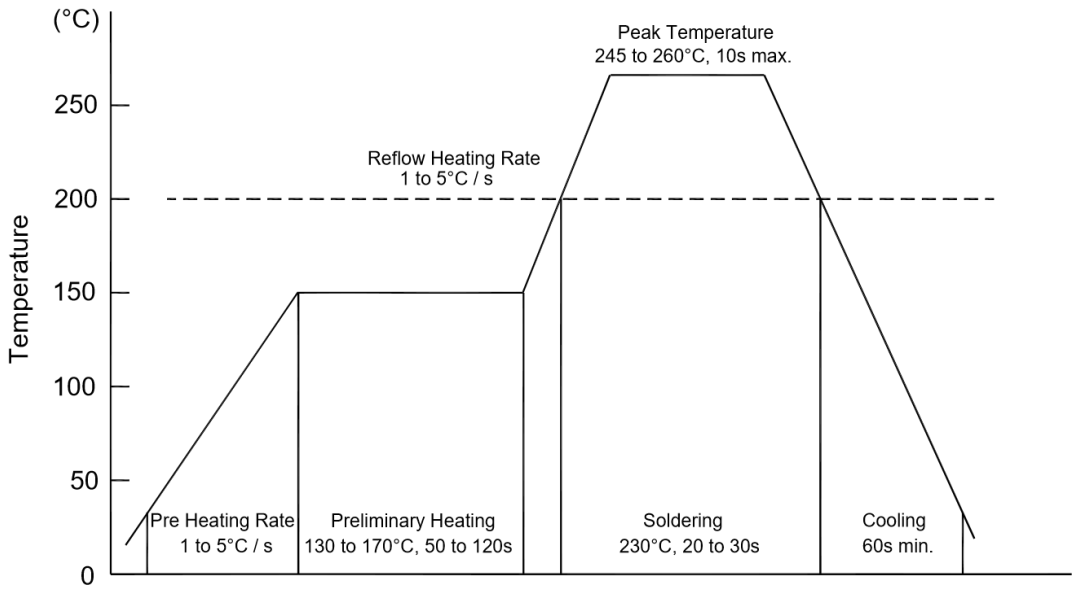


Ordering Information

Device	Package	Shipping
PJ75ALXXSQ	SOT-89	1000PCS/Reel&Tape

Conditions of Soldering

◆ Recommended condition of reflow soldering



Recommended peak temperature is over 245 ^{O}C. If peak temperature is below 245 ^{O}C, you may adjust the following parameters:

- Time length of peak temperature (longer)
- Time length of soldering (longer)
- Thickness of solder paste (thicker)

◆ Conditions of hand soldering

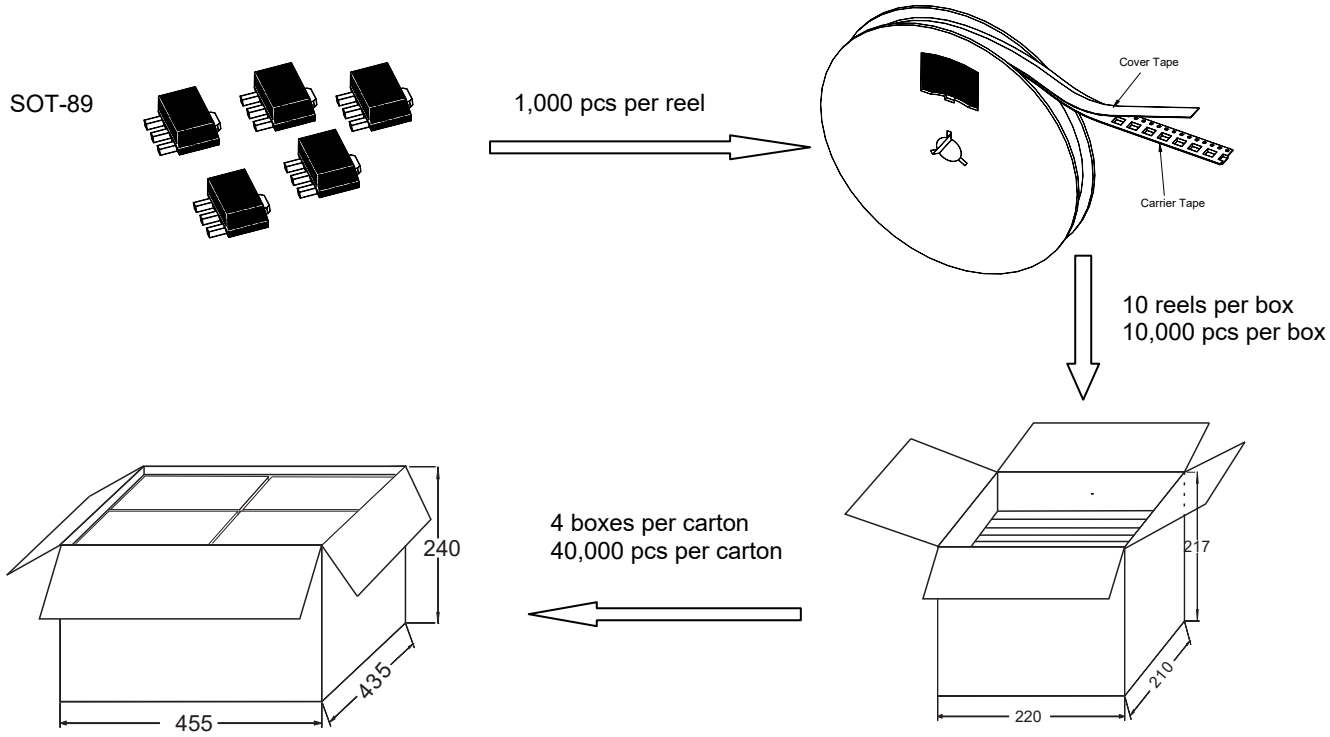
- Temperature: 370 ^{O}C
- Time: 3s max.
- Times: one time

◆ Storage conditions

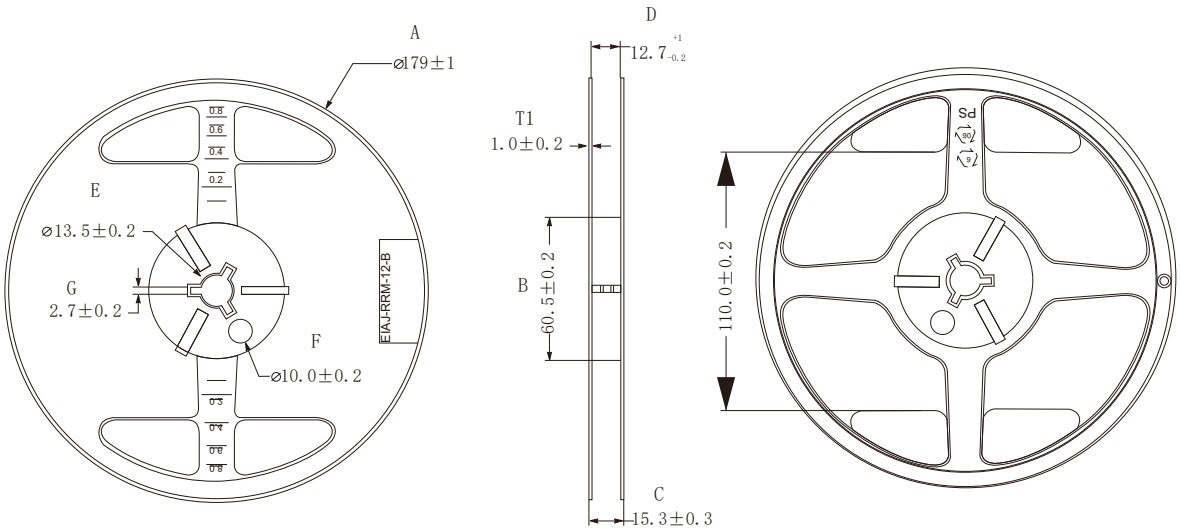
- **Temperature**
  5 to 40 ^{O}C
- **Humidity**
  30 to 80% RH
- **Recommended period**
  One year after manufacturing

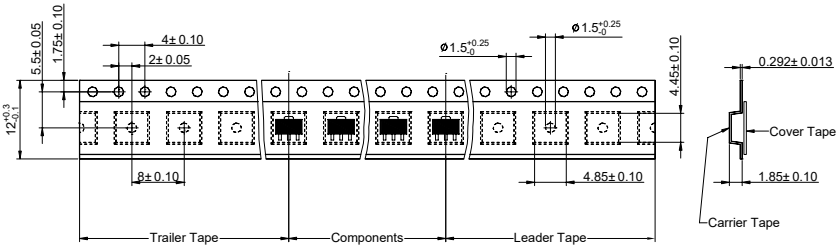
Package Specification

The method of packaging and dimension are shown as below figure.



Tape and reel data (Units: mm)





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