KODENSHI AUK

A78RxxPIC

LDO Fixed Regulator IC

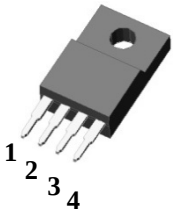
Description

The A78Rxx Series is a low dropout voltage regulator suitable for various electronic equipments. It provides constant voltage power source with TO-220F-4SL lead full-mold package. Dropout voltage of A78Rxx Series is below Max.0.5V in full rated current (1.0A). This regulator has various functions such as current limit protection, over voltage protection and output on/off control.

Features

- 1.0A output low dropout regulator
- TO-220F-4SL full-mold package (4pin)
- Current limit protection
- Over voltage protection
- Thermal shutdown protection
- With output on/off control (At typical 1.5V)
- Control pin open or high signal, output on

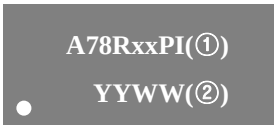
Pin Connection



1. INPUT
2. OUTPUT
3. GROUND
4. ON/OFF CONTROL

Ordering Information

Product	Marking	Package
A78RxxPIC	A78RxxPI	TO-220F-4SL

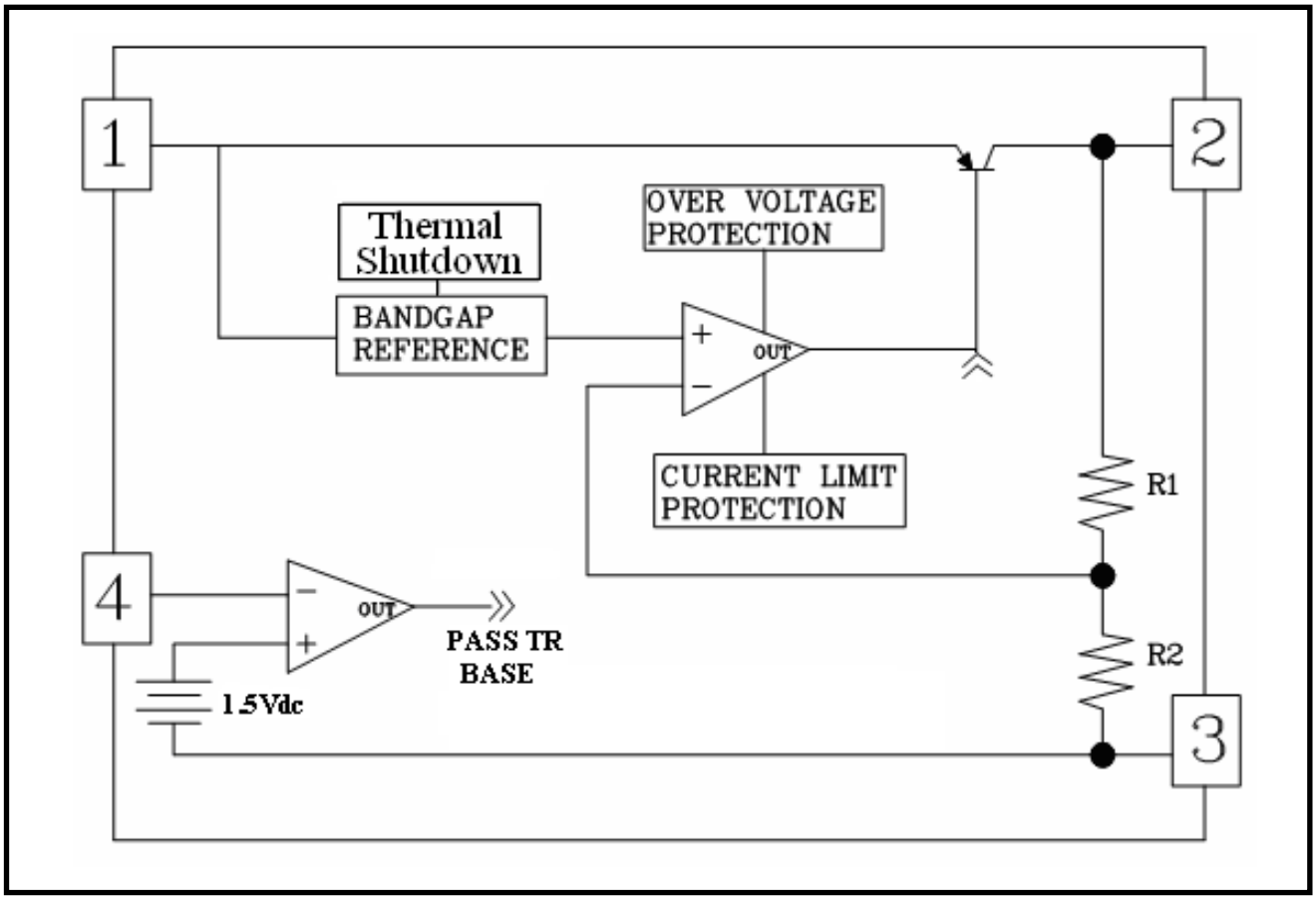


① Device Code
② Year & Week Code

Device Selection Guide

Device	Output Voltage
A78R33PIC	3.3V
A78R35PIC	3.5V
A78R05PIC	5.0V
A78R06PIC	6.0V
A78R08PIC	8.0V
A78R09PIC	9.0V
A78R12PIC	12.0V

Block Diagram



Absolute Maximum Ratings

[Ta=25℃]

Characteristic	Symbol	Rating	Unit
Input Voltage	V_I	18(All Others)	V
		25(A78R12PIC)	V
Control Input Voltage	V_{CT}	18	V
Power Dissipation	P_{D1}(No Heatsink)	2.0	W
	P_{D2}(With Heatsink)	20	W
Junction Temperature	T_J	150	°C
Operating Temperature Range	T_{opr}	-20 ~ 80	°C
Storage Temperature Range	T_{stg}	-55 ~ 150	°C

Electrical Characteristics

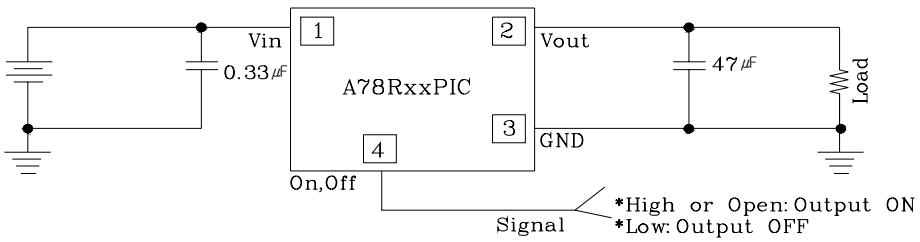
($V_I = V_O+2V$, Io = 500mA, $V_{CT(High)}$=2.7V, T_a = 25°C, unless otherwise specified)

Electric Characteristic	Symbol	Conditions		Min.	Typ.	Max.	Unit
Output Voltage	V_O	A78R33PIC	-	3.22	3.3	3.38	V
		A78R35PIC	-	3.41	3.5	3.59	V
		A78R05PIC	-	4.88	5.0	5.12	V
		A78R06PIC	-	5.85	6.0	6.15	V
		A78R08PIC	-	7.80	8.0	8.20	V
		A78R09PIC	-	8.78	9.0	9.22	V
		A78R12PIC	-	11.7	12.0	12.3	V
Line Regulation	$\triangle V_{O(\triangle VI)}$	Note1, I_O=500mA		-	0.5	2.5	%
Load Regulation	$\triangle V_{O(\triangle IL)}$	5mA≤I_O≤1.0A		-	0.1	2.0	%
Quiescent Current	I_{QC}	I_O=0mA		-	-	10	mA
Ripple Rejection Ratio	RR	(V_O+2V)≤V_I≤12V, I_O=50mA f=120Hz		45	55	-	dB
Dropout Voltage	V_{DROP}	I_O=1.0A		-	-	0.5	V
Control Voltage High	$V_{CT(High)}$	I_O=0mA, Output ON		2.0	-	-	V
Control Voltage Low	$V_{CT(Low)}$	I_O=0mA, Output OFF		-	-	0.8	V
Control Bias Current High	$I_{CT(High)}$	$V_{CT(High)}$ = 2.7V		-	-	20	μA
Control Bias Current Low	$I_{CT(Low)}$	$V_{CT(Low)}$ = 0.4V		-	-	-0.4	mA

Note

1. A78R33: V_I=4.3V~12V A78R35: V_I=4.5V~12V
   A78R05: V_I=6V~12V A78R06: V_I=7V~15V
   A78R08: V_I=9V~16V A78R09: V_I=10V~16V
   A78R12: V_I=12V~16V

◈ Test Circuit of A78RxxPIC



Electrical Characteristic Curves

Fig.1 I_O vs. V_O

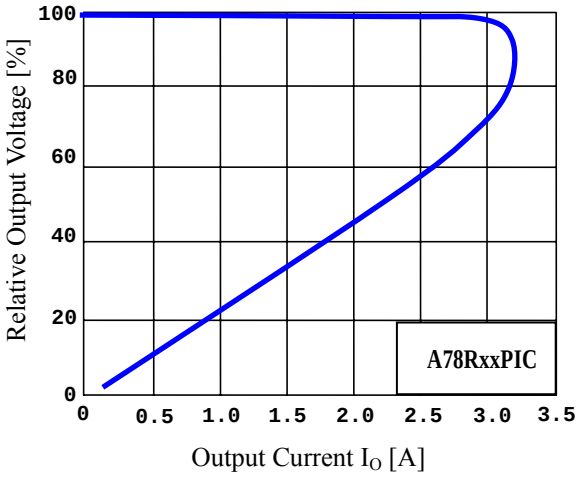


Fig.2 T_a vs. P_D

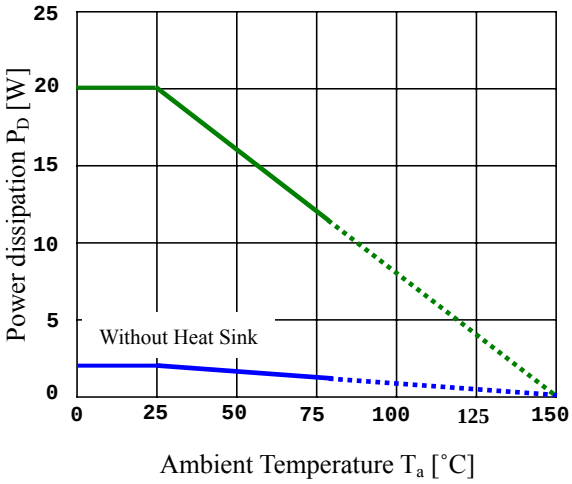


Fig.3 V_I vs. I_{QC}

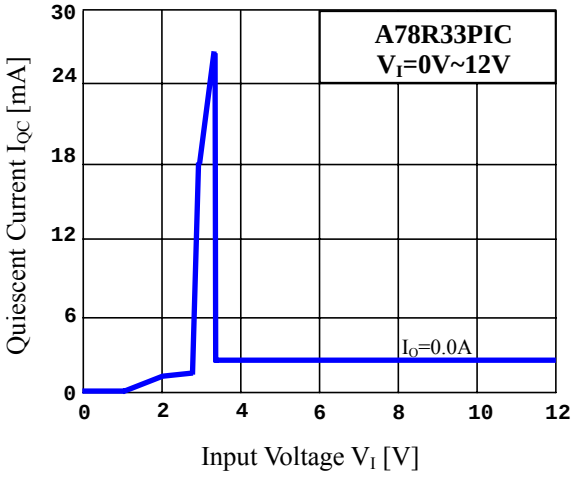


Fig.4 V_I vs. I_{QC}

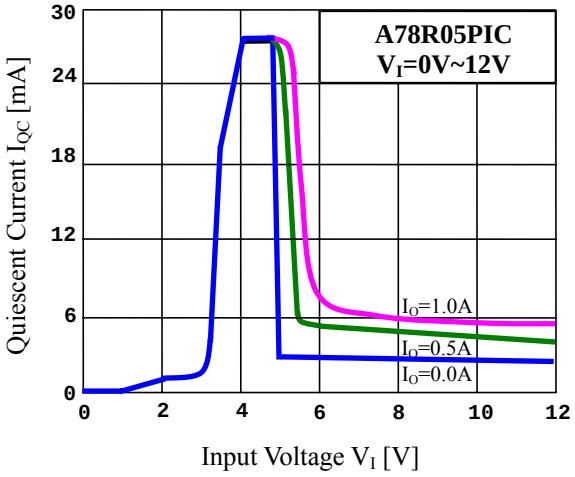


Fig.5 V_I vs. I_{QC}

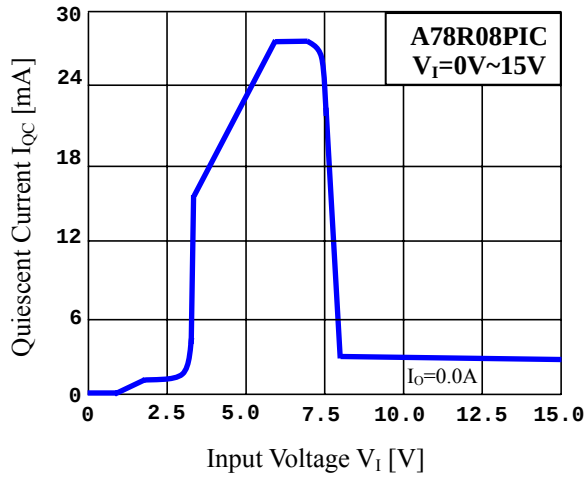
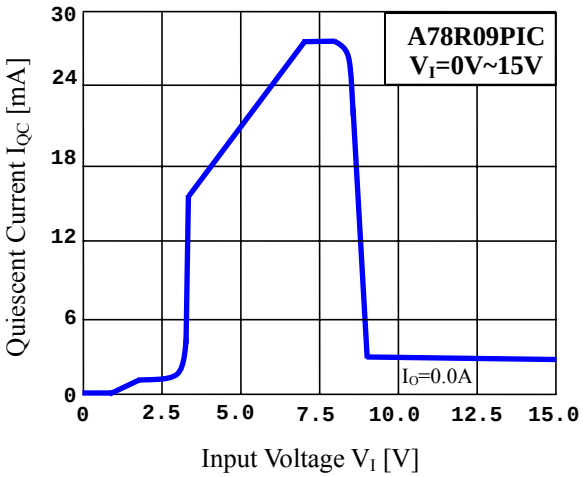


Fig.6 V_I vs. I_{QC}



Electrical Characteristic Curves

Fig.7 V_I vs. I_{QC}

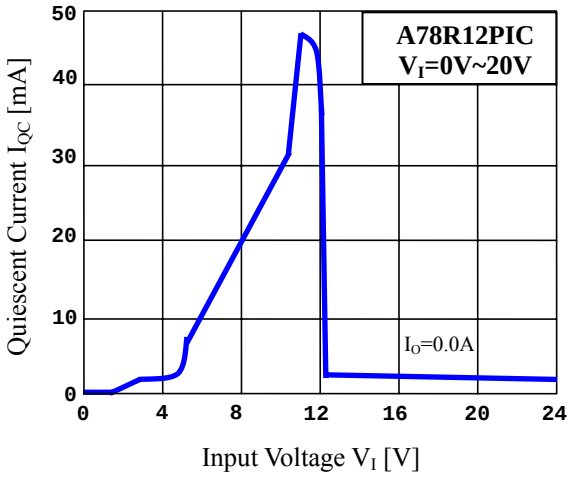


Fig.8 T_j vs. I_{QC}

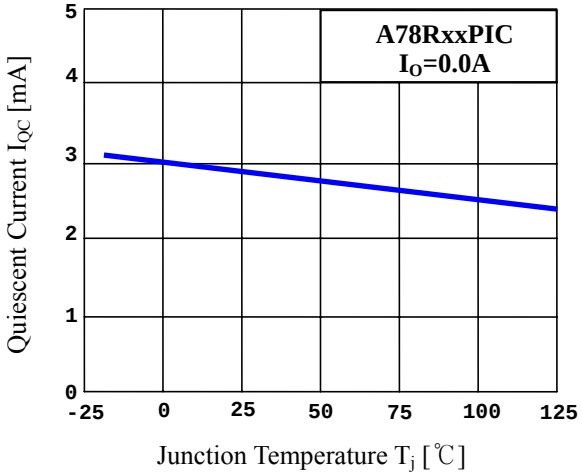


Fig.9 V_{CT} vs. V_O

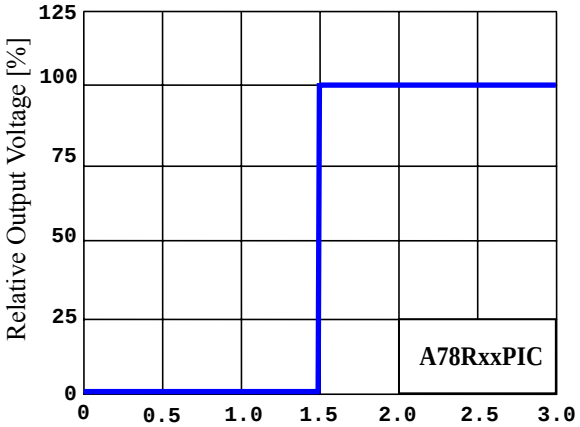
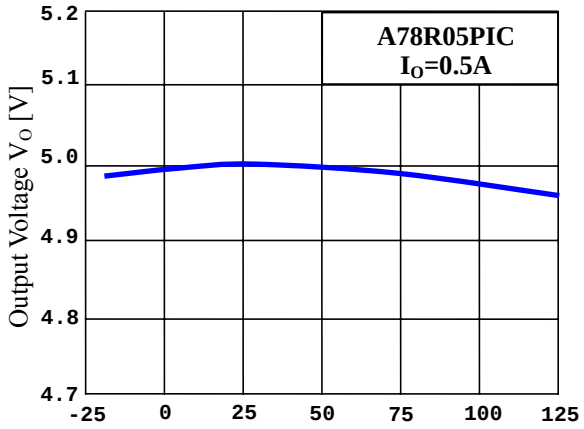
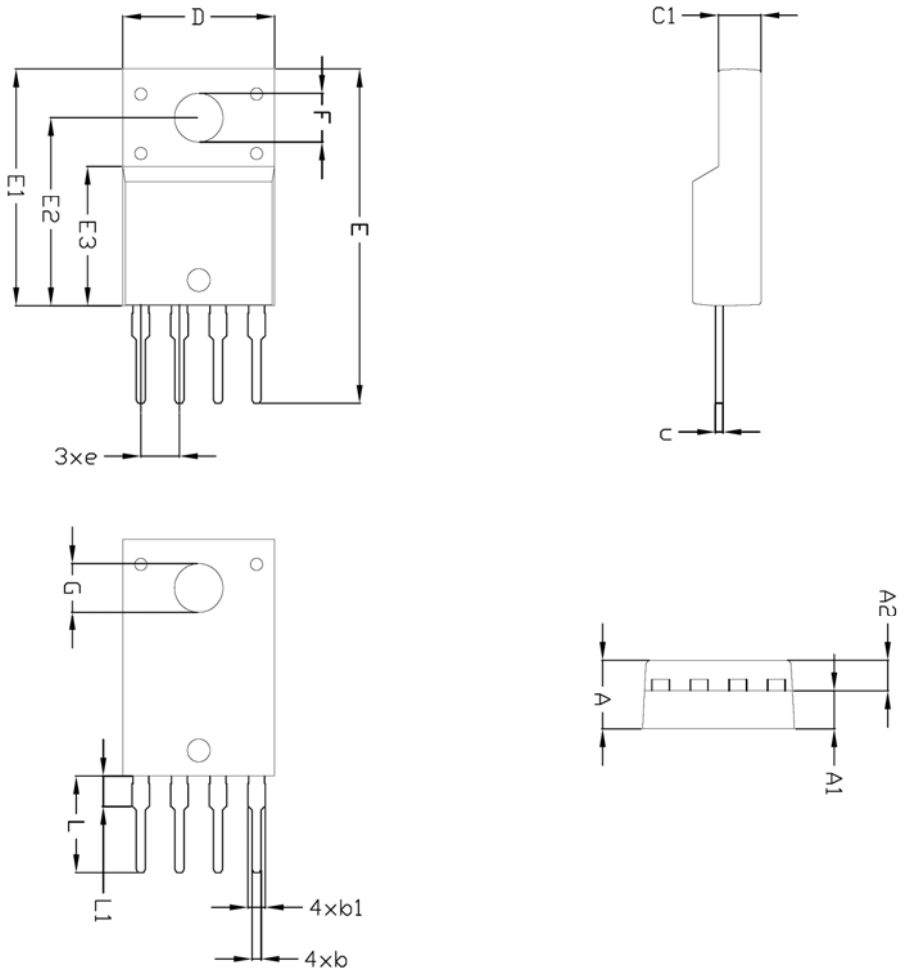


Fig.10 T_j vs. V_O



Outline Dimension



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	-	-	4.60	
A1	2.45	2.50	2.55	
A2	1.95	2.00	2.05	
b	0.50	0.60	0.70	
b1	0.85	1.05	1.25	
c	0.40	0.50	0.60	
c1	2.70	2.80	2.90	
D	9.90	10.00	10.10	
E	20.80	-	21.40	
E1	15.50	15.60	15.70	
E2	12.30	12.40	12.50	
E3	9.15	9.20	9.25	
F	3.10	3.20	3.30	
G	3.30	3.40	3.50	
e	2.54 BSC			
L	5.20	-	5.80	
L1	2.00 BSC			

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