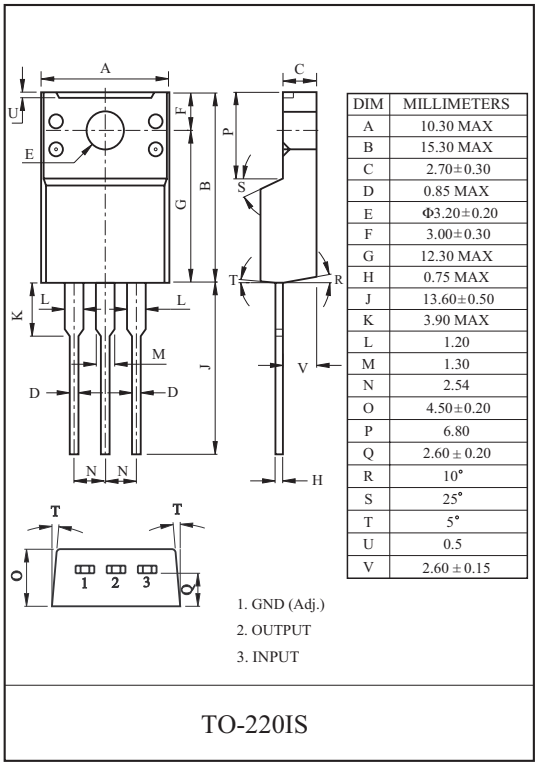
LOW DROP FIXED AND ADJUSTABLE POSITIVE VOLTAGE REGULATOR

The KIA1117API × × is a Low Drop Voltage Regulator able to provide up to 1A of output current, available even in adjustable version (Vref=1.25V)



DIM	MILLIMETERS
A	10.30 MAX
B	15.30 MAX
C	2.70±0.30
D	0.85 MAX
E	Φ3.20±0.20
F	3.00±0.30
G	12.30 MAX
H	0.75 MAX
J	13.60±0.50
K	3.90 MAX
L	1.20
M	1.30
N	2.54
O	4.50±0.20
P	6.80
Q	2.60±0.20
R	10°
S	25°
T	5°
U	0.5
V	2.60±0.15

TO-220IS

FEATURES

- Low Dropout Voltage : 1.1V/Typ. (Iout=1.0A)
- Very Low Quiescent Current : 2.5㎃/Typ.
- Output Current up to 1A
- Fixed Output Voltage of 1.5V, 1.8V, 2.5V, 2.85V, 3.3V, 5.0V
- Adjustable Version Availability : Vref=1.25V
- Internal Current and Thermal Limit
- A Minimum of 10㎌ for stability
- Available in ±2%(at 25℃)
- High Ripple Rejection : 80dB/Typ
- Temperature Range : -30℃~125℃

LINE UP

ITEM	OUTPUT VOLTAGE (V)	PACKAGE
KIA1117API00	Adjustable (1.25~10V)	API : TO-220IS
KIA1117API15	1.5	
KIA1117API18	1.8	
KIA1117API25	2.5	
KIA1117API28	2.85	
KIA1117API33	3.3	
KIA1117API50	5.0	

MAXIMUM RATINGS (Ta=25℃)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Input Voltage	V_{IN}	10	V
Output Current	I_{OUT}	1.0	A
Power Dissipation 1 (No Heatsink)	P_{D1}	2.0	W
Power Dissipation 2 (Infinite Heatsink)	P_{D2}	20.8	W
Operating Temperature	T_{opr}	-30~125	℃
Storage Temperature	T_{stg}	-55~150	℃

Fig.1 Application Circuit-1 (Fixed-Type)

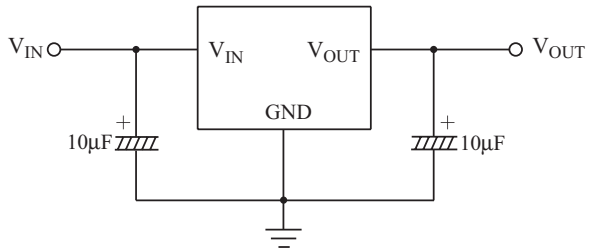
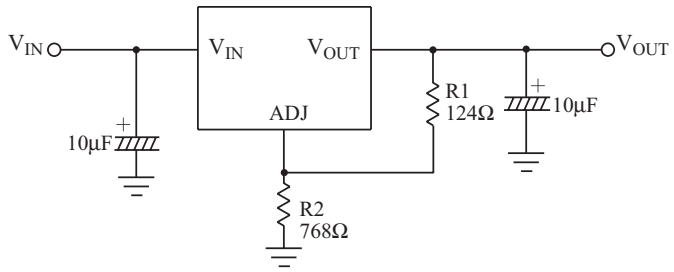
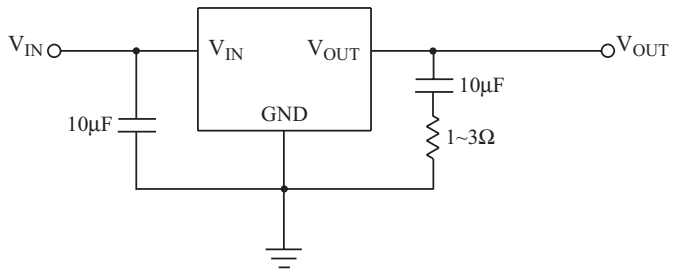


Fig.2 Application Circuit-2 (Adjustable-Type)



$V_{OUT}=V_{REF}\,(1+R2/R1)+I_{ADJ}\bullet R2$

Fig.3 Application Circuit-3 (With MLCC)



• When using a ceramic capacitor,
set an additional series resister 1~3Ω for stability.

ELECTRICAL CHARACTERISTICS

KIA1117API00 (Unless otherwise specified, Tj=-30~125℃)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT1}	$V_{IN}=V_{OUT}+1.5V$, $I_{OUT}=10mA$, Tj=25℃	$V_{OUT}\times0.98$	V_{OUT}	$V_{OUT}\times1.02$	V
	V_{OUT2}	$10mA\leq I_{OUT}\leq1A$, $V_{OUT}+1.5V\leq V_{IN}\leq10V$	$V_{OUT}\times0.97$	V_{OUT}	$V_{OUT}\times1.03$	
Line Regulation	Reg Line	$V_{OUT}+1.5V\leq V_{IN}\leq10V$, $I_{OUT}=10mA$	-	1	10	mV
Load Regulation	Reg Load	$10mA\leq I_{OUT}\leq1A$, $V_{IN}=V_{OUT}+2.0V$	-	0.5	1	%
Quiescent Current	I_{B1}	$V_{IN}=V_{OUT}+1.25V$, $I_{OUT}=0A$	-	2.5	5	mA
	I_{B2}	$V_{IN}=10V$, $I_{OUT}=0A$	-	2.5	5	
Adjustable Pin Current	I_{ADJ}	$V_{IN}=V_{OUT}+1.5V$	-	35	-	μA
Minimum Load Current	I_{MIN}	$V_{IN}=V_{OUT}+1.5V$	10	-	-	mA
Output Noise Voltage	V_{NO}	$V_{IN}=V_{OUT}+1.25V$, $I_{OUT}=40mA$, $10Hz\leq f\leq10kHz$	-	100	-	μVrms
Sort Circuit Current Limit	I_{SC}	$V_{IN}=V_{OUT}+2.0V$	1.1	-	-	A
Ripple Rejection	R · R	$I_{OUT}=40mA$, f=120Hz, Vripple=1Vp-p $V_{IN}=V_{OUT}+3V$	60	80	-	dB
Dropout Voltage	V_D	$I_{OUT}=1A$, $V_{IN}=0.95V_{OUT}$	-	1.1	1.4	V
Temperature Stability	TCV_O	$V_{IN}=V_{OUT}+1.5V$, $I_{OUT}=10mA$	-	0.5	-	%

ELECTRICAL CHARACTERISTICS

KIA1117API15 (Unless otherwise specified, Tj=-30~125℃)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT1}	$V_{IN}=V_{OUT}+1.5V$, $I_{OUT}=10mA$, Tj=25℃	$V_{OUT}\times0.98$	V_{OUT}	$V_{OUT}\times1.02$	V
	V_{OUT2}	$10mA\leq I_{OUT}\leq1A$, $V_{OUT}+1.5V\leq V_{IN}\leq10V$	$V_{OUT}\times0.97$	V_{OUT}	$V_{OUT}\times1.03$	
Line Regulation	Reg Line	$V_{OUT}+1.5V\leq V_{IN}\leq10V$, $I_{OUT}=10mA$	-	1	10	mV
Load Regulation	Reg Load	$10mA\leq I_{OUT}\leq1A$, $V_{IN}=V_{OUT}+2.0V$	-	0.5	1	%
Quiescent Current	I_{B1}	$V_{IN}=V_{OUT}+1.25V$, $I_{OUT}=0A$	-	2.5	5	mA
	I_{B2}	$V_{IN}=10V$, $I_{OUT}=0A$	-	2.5	5	
Output Noise Voltage	V_{NO}	$V_{IN}=V_{OUT}+1.25V$, $I_{OUT}=40mA$, $10Hz\leq f\leq10kHz$	-	100	-	μVrms
Sort Circuit Current Limit	I_{SC}	$V_{IN}=V_{OUT}+2.0V$	1.1	-	-	A
Ripple Rejection	R · R	$I_{OUT}=40mA$, f=120Hz, Vripple=1Vp-p $V_{IN}=V_{OUT}+3V$	60	80	-	dB
Dropout Voltage	V_D	$I_{OUT}=1A$, $V_{IN}=0.95V_{OUT}$	-	1.1	1.4	V
Temperature Stability	TCV_O	$V_{IN}=V_{OUT}+1.5V$, $I_{OUT}=10mA$	-	0.5	-	%

ELECTRICAL CHARACTERISTICS

KIA1117API18 (Unless otherwise specified, Tj=-30~125℃)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT1}	$V_{IN}=V_{OUT}+1.5V$, $I_{OUT}=10mA$, Tj=25℃	$V_{OUT}\times0.98$	V_{OUT}	$V_{OUT}\times1.02$	V
	V_{OUT2}	$10mA\leq I_{OUT}\leq1A$, $V_{OUT}+1.5V\leq V_{IN}\leq10V$	$V_{OUT}\times0.97$	V_{OUT}	$V_{OUT}\times1.03$	
Line Regulation	Reg Line	$V_{OUT}+1.5V\leq V_{IN}\leq10V$, $I_{OUT}=10mA$	-	1	10	mV
Load Regulation	Reg Load	$10mA\leq I_{OUT}\leq1A$, $V_{IN}=V_{OUT}+2.0V$	-	0.5	1	%
Quiescent Current	I_{B1}	$V_{IN}=V_{OUT}+1.25V$, $I_{OUT}=0A$	-	2.5	5	mA
	I_{B2}	$V_{IN}=10V$, $I_{OUT}=0A$	-	2.5	5	
Output Noise Voltage	V_{NO}	$V_{IN}=V_{OUT}+1.25V$, $I_{OUT}=40mA$, $10Hz\leq f\leq10kHz$	-	100	-	μVrms
Sort Circuit Current Limit	I_{SC}	$V_{IN}=V_{OUT}+2.0V$	1.1	-	-	A
Ripple Rejection	R · R	$I_{OUT}=40mA$, f=120Hz, Vripple=1Vp-p $V_{IN}=V_{OUT}+3V$	60	80	-	dB
Dropout Voltage	V_D	$I_{OUT}=1A$, $V_{IN}=0.95V_{OUT}$	-	1.1	1.4	V
Temperature Stability	TCV_O	$V_{IN}=V_{OUT}+1.5V$, $I_{OUT}=10mA$	-	0.5	-	%

ELECTRICAL CHARACTERISTICS

KIA1117API25 (Unless otherwise specified, Tj=-30~125℃)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT1}	$V_{IN}=V_{OUT}+1.5V$, $I_{OUT}=10mA$, Tj=25℃	$V_{OUT}\times0.98$	V_{OUT}	$V_{OUT}\times1.02$	V
	V_{OUT2}	$10mA\leq I_{OUT}\leq1A$, $V_{OUT}+1.5V\leq V_{IN}\leq10V$	$V_{OUT}\times0.97$	V_{OUT}	$V_{OUT}\times1.03$	
Line Regulation	Reg Line	$V_{OUT}+1.5V\leq V_{IN}\leq10V$, $I_{OUT}=10mA$	-	1	10	mV
Load Regulation	Reg Load	$10mA\leq I_{OUT}\leq1A$, $V_{IN}=V_{OUT}+2.0V$	-	0.5	1	%
Quiescent Current	I_{B1}	$V_{IN}=V_{OUT}+1.25V$, $I_{OUT}=0A$	-	2.5	5	mA
	I_{B2}	$V_{IN}=10V$, $I_{OUT}=0A$	-	2.5	5	
Output Noise Voltage	V_{NO}	$V_{IN}=V_{OUT}+1.25V$, $I_{OUT}=40mA$, $10Hz\leq f\leq10kHz$	-	100	-	μVrms
Sort Circuit Current Limit	I_{SC}	$V_{IN}=V_{OUT}+2.0V$	1.1	-	-	A
Ripple Rejection	R · R	$I_{OUT}=40mA$, f=120Hz, Vripple=1Vp-p $V_{IN}=V_{OUT}+3V$	60	80	-	dB
Dropout Voltage	V_D	$I_{OUT}=1A$, $V_{IN}=0.95V_{OUT}$	-	1.1	1.4	V
Temperature Stability	TCV_O	$V_{IN}=V_{OUT}+1.5V$, $I_{OUT}=10mA$	-	0.5	-	%

ELECTRICAL CHARACTERISTICS

KIA1117API28 (Unless otherwise specified, Tj=-30~125℃)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT1}	$V_{IN}=V_{OUT}+1.5V$, $I_{OUT}=10mA$, Tj=25℃	$V_{OUT}\times0.98$	V_{OUT}	$V_{OUT}\times1.02$	V
	V_{OUT2}	$10mA\leq I_{OUT}\leq1A$, $V_{OUT}+1.5V\leq V_{IN}\leq10V$	$V_{OUT}\times0.97$	V_{OUT}	$V_{OUT}\times1.03$	
Line Regulation	Reg Line	$V_{OUT}+1.5V\leq V_{IN}\leq10V$, $I_{OUT}=10mA$	-	1	10	mV
Load Regulation	Reg Load	$10mA\leq I_{OUT}\leq1A$, $V_{IN}=V_{OUT}+2.0V$	-	0.5	1	%
Quiescent Current	I_{B1}	$V_{IN}=V_{OUT}+1.25V$, $I_{OUT}=0A$	-	2.5	5	mA
	I_{B2}	$V_{IN}=10V$, $I_{OUT}=0A$	-	2.5	5	
Output Noise Voltage	V_{NO}	$V_{IN}=V_{OUT}+1.25V$, $I_{OUT}=40mA$, $10Hz\leq f\leq10kHz$	-	100	-	μVrms
Sort Circuit Current Limit	I_{SC}	$V_{IN}=V_{OUT}+2.0V$	1.1	-	-	A
Ripple Rejection	R · R	$I_{OUT}=40mA$, f=120Hz, Vripple=1Vp-p $V_{IN}=V_{OUT}+3V$	60	80	-	dB
Dropout Voltage	V_D	$I_{OUT}=1A$, $V_{IN}=0.95V_{OUT}$	-	1.1	1.4	V
Temperature Stability	TCV_O	$V_{IN}=V_{OUT}+1.5V$, $I_{OUT}=10mA$	-	0.5	-	%

ELECTRICAL CHARACTERISTICS

KIA1117API33 (Unless otherwise specified, Tj=-30~125℃)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT1}	$V_{IN}=V_{OUT}+1.5V$, $I_{OUT}=10mA$, Tj=25℃	$V_{OUT}\times0.98$	V_{OUT}	$V_{OUT}\times1.02$	V
	V_{OUT2}	$10mA\leq I_{OUT}\leq1A$, $V_{OUT}+1.5V\leq V_{IN}\leq10V$	$V_{OUT}\times0.97$	V_{OUT}	$V_{OUT}\times1.03$	
Line Regulation	Reg Line	$V_{OUT}+1.5V\leq V_{IN}\leq10V$, $I_{OUT}=10mA$	-	1	10	mV
Load Regulation	Reg Load	$10mA\leq I_{OUT}\leq1A$, $V_{IN}=V_{OUT}+2.0V$	-	0.5	1	%
Quiescent Current	I_{B1}	$V_{IN}=V_{OUT}+1.25V$, $I_{OUT}=0A$	-	2.5	5	mA
	I_{B2}	$V_{IN}=10V$, $I_{OUT}=0A$	-	2.5	5	
Output Noise Voltage	V_{NO}	$V_{IN}=V_{OUT}+1.25V$, $I_{OUT}=40mA$, $10Hz\leq f\leq10kHz$	-	100	-	μVrms
Sort Circuit Current Limit	I_{SC}	$V_{IN}=V_{OUT}+2.0V$	1.1	-	-	A
Ripple Rejection	R · R	$I_{OUT}=40mA$, f=120Hz, Vripple=1Vp-p $V_{IN}=V_{OUT}+3V$	60	80	-	dB
Dropout Voltage	V_D	$I_{OUT}=1A$, $V_{IN}=0.95V_{OUT}$	-	1.1	1.4	V
Temperature Stability	TCV_O	$V_{IN}=V_{OUT}+1.5V$, $I_{OUT}=10mA$	-	0.5	-	%

ELECTRICAL CHARACTERISTICS

KIA1117API50 (Unless otherwise specified, Tj=-30~125℃)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V_{OUT1}	$V_{IN}=V_{OUT}+1.5V$, $I_{OUT}=10mA$, Tj=25℃	$V_{OUT}\times0.98$	V_{OUT}	$V_{OUT}\times1.02$	V
	V_{OUT2}	$10mA\leq I_{OUT}\leq1A$, $V_{OUT}+1.5V\leq V_{IN}\leq10V$	$V_{OUT}\times0.97$	V_{OUT}	$V_{OUT}\times1.03$	
Line Regulation	Reg Line	$V_{OUT}+1.5V\leq V_{IN}\leq10V$, $I_{OUT}=10mA$	-	1	10	mV
Load Regulation	Reg Load	$10mA\leq I_{OUT}\leq1A$, $V_{IN}=V_{OUT}+2.0V$	-	0.5	1	%
Quiescent Current	I_{B1}	$V_{IN}=V_{OUT}+1.25V$, $I_{OUT}=0A$	-	2.5	5	mA
	I_{B2}	$V_{IN}=10V$, $I_{OUT}=0A$	-	2.5	5	
Output Noise Voltage	V_{NO}	$V_{IN}=V_{OUT}+1.25V$, $I_{OUT}=40mA$, $10Hz\leq f\leq10kHz$	-	100	-	μVrms
Sort Circuit Current Limit	I_{SC}	$V_{IN}=V_{OUT}+2.0V$	1.1	-	-	A
Ripple Rejection	R · R	$I_{OUT}=40mA$, f=120Hz, Vripple=1Vp-p $V_{IN}=V_{OUT}+3V$	60	80	-	dB
Dropout Voltage	V_D	$I_{OUT}=1A$, $V_{IN}=0.95V_{OUT}$	-	1.1	1.4	V
Temperature Stability	TCV_O	$V_{IN}=V_{OUT}+1.5V$, $I_{OUT}=10mA$	-	0.5	-	%

Fig. 3 V_D - I_{OUT}

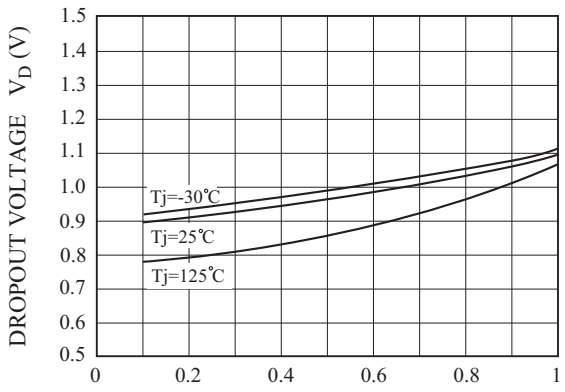


Fig. 4 V_{OUT}(CHANGE) - T_j

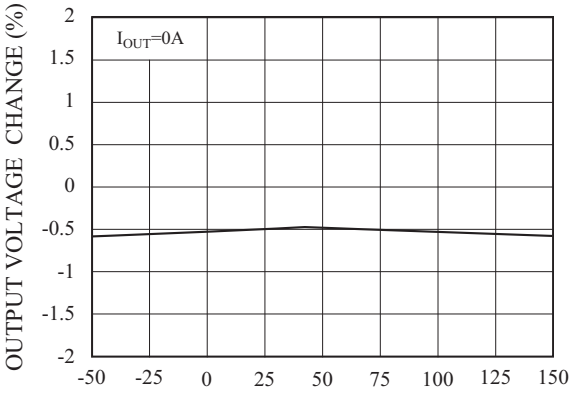


Fig. 5 LINE REGULATION

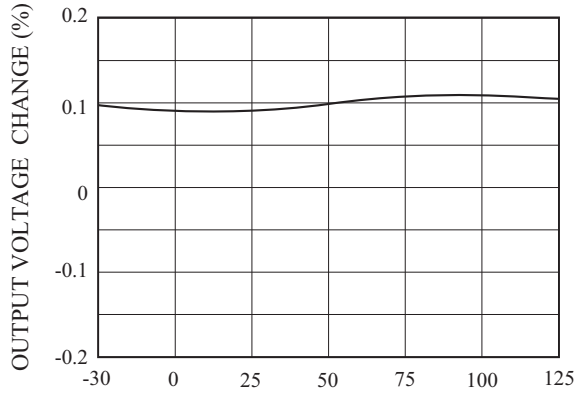


Fig. 4 LOAD REGULATION

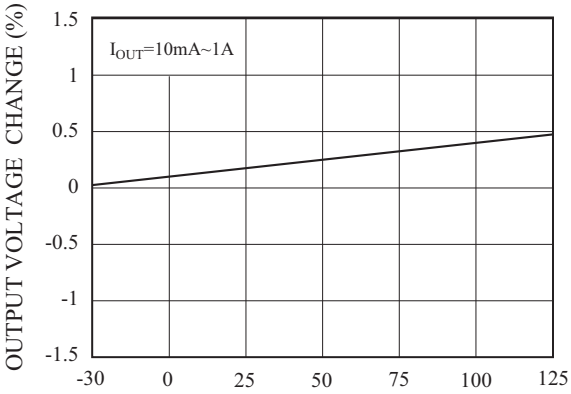


Fig.7 I_Q - T_j

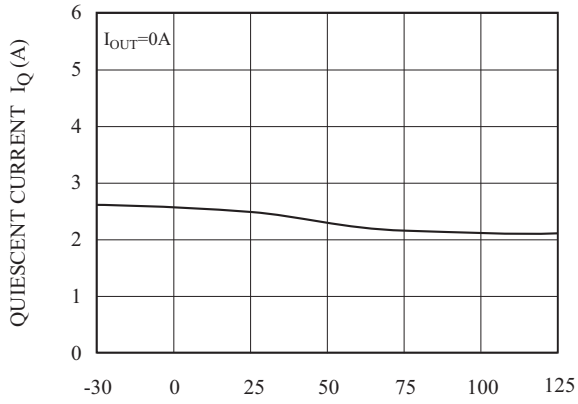


Fig.8 R.R - f

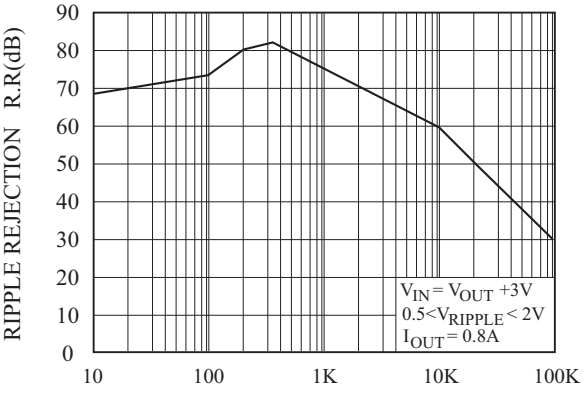


Fig.9 P_D - Ta (API-Type : TO-220IS)

