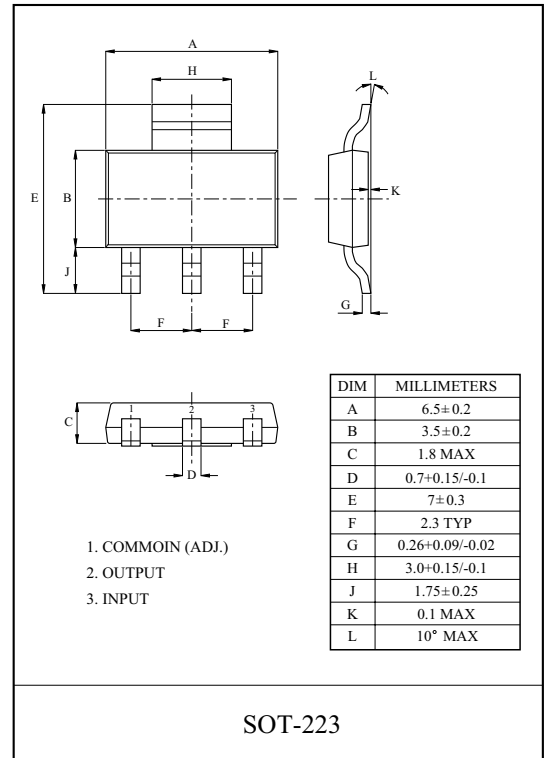


LOW DROP FIXED AND ADJUSTABLE POSITIVE VOLTAGE REGULATOR

The KIA1117S/F × × is a Low Drop Voltage Regulator able to provide up to 1A of output current, available even in adjustable version ($V_{ref}=1.25V$)

FEATURES

- Low Dropout Voltage : 1.1V/Typ. ($I_{out}=1.0A$)
- Very Low Quiescent Current : 4.2mA/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 : $V_{ref}=1.25V$
- Internal Current and Thermal Limit
- Only 10 μF for stability
- Available in $\pm 2%$ (at 25 $^{\circ}C$) and 4% in full Temperature range
- High Ripple Rejection : 80dB/Typ
- Temperature Range : 0 $^{\circ}C$ ~ 125 $^{\circ}C$



LINE UP

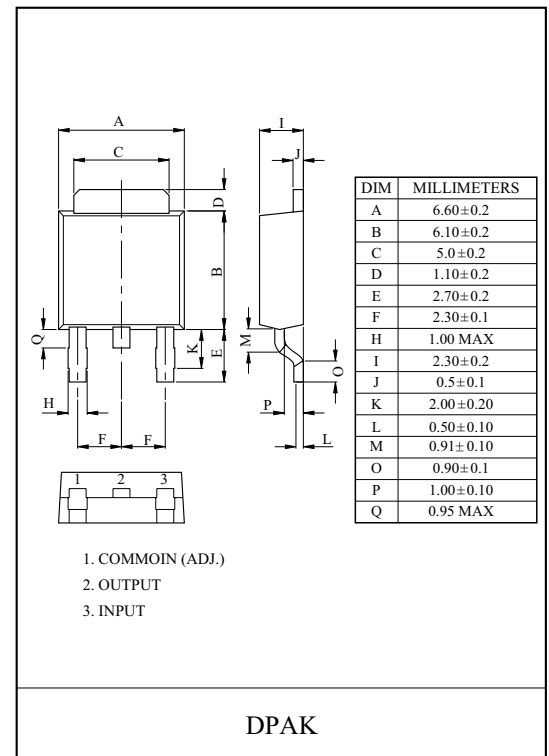
ITEM	OUTPUT VOLTAGE (V)	PACKAGE
KIA1117S/F00	Adjustable (1.25~10V)	S : SOT-223 F : DPAK
KIA1117S/F15	1.5	
KIA1117S/F18	1.8	
KIA1117S/F25	2.5	
KIA1117S/F28	2.85	
KIA1117S/F33	3.3	
KIA1117S/F50	5.0	

MAXIMUM RATINGS ($T_a=25^{\circ}C$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Input Voltage	V_{IN}	10	V
Output Current	S/F I_{OUT}	1.0	A
Power Dissipation 1 (No heatsink)	S (Note)	1.0	W
	F	1.3	
Power Dissipation 2 (Without heatsink)	S	8.3	W
	F	13	
Operating Temperature	T_{opr}	0 ~ 125	$^{\circ}C$
Storage Temperature	T_{stg}	-55 ~ 150	$^{\circ}C$

Note) Package Mounted on FR-4 PCB 36 × 18 × 1.5 mm.

: mounting pad for the GND Lead min. 6cm²



KIA1117S/F00~KIA1117S/F50

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

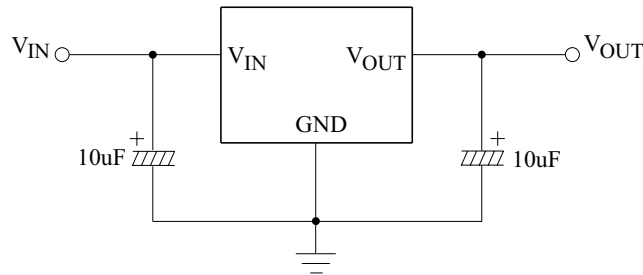
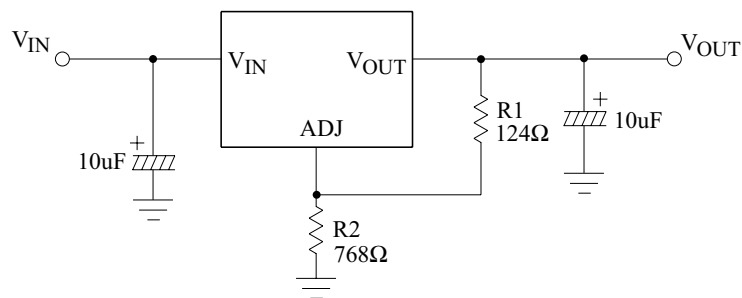


Fig.2 Application Circuit-2 (Adjustable-Type)



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

ELECTRICAL CHARACTERISTICS

KIA1117S/F00 (Unless otherwise specified, T_j=0~125 °C)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V _{OUT1}	V _{IN} =V _{OUT} +1.5V, I _{OUT} =10mA, T _j =25 °C	1.225	1.25	1.275	V
	V _{OUT2}	10mA ≤ I _{OUT} ≤ 1A, V _{OUT} +1.5V ≤ V _{IN} ≤ 10V	1.20	1.25	1.30	
Line Regulation	Reg Line	V _{OUT} +1.5V ≤ V _{IN} ≤ 10V, I _{OUT} =10mA	-	1	10	mV
Load Regulation	Reg Load	10mA ≤ I _{OUT} ≤ 1A, V _{IN} =V _{OUT} +2.0V	-	15	30	mV
Quiescent Current	I _{B1}	V _{IN} =V _{OUT} +1.25V, I _{OUT} =0A	-	4.2	10	mA
	I _{B2}	V _{IN} =10V, I _{OUT} =0A	-	4.2	10	
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 ≤ f ≤ 10kHz	-	100	-	μV _{rms}
Sort Circuit Current Limit	I _{SC}	V _{IN} =V _{OUT} +2.0V	1.1	-	-	A
Ripple Rejection	R · R	I _{OUT} =40mA, f=120Hz, V _{ripple} =1Vp-p V _{IN} =V _{OUT} +3V	60	80	-	dB
Dropout Voltage	V _D	I _{OUT} =1A, V _{IN} =0.95V _{OUT}	-	1.1	1.2	V
Temperature Stability	TCV _O	V _{IN} =V _{OUT} +1.5V, I _{OUT} =10mA	-	0.5	-	%

KIA1117S/F00~KIA1117S/F50

ELECTRICAL CHARACTERISTICS

KIA1117S/F15 (Unless otherwise specified, Tj=0~125 °C)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V _{OUT1}	V _{IN} =V _{OUT} +1.5V, I _{OUT} =10mA, Tj=25 °C	1.47	1.5	1.53	V
	V _{OUT2}	10mA ≤ I _{OUT} ≤ 1A, V _{OUT} +1.5V ≤ V _{IN} ≤ 10V	1.44	1.5	1.56	
Line Regulation	Reg Line	V _{OUT} +1.5V ≤ V _{IN} ≤ 10V, I _{OUT} =10mA	-	1	10	mV
Load Regulation	Reg Load	10mA ≤ I _{OUT} ≤ 1A, V _{IN} =V _{OUT} +2.0V	-	15	30	mV
Quiescent Current	I _{B1}	V _{IN} =V _{OUT} +1.25V, I _{OUT} =0A	-	4.2	10	mA
	I _{B2}	V _{IN} =10V, I _{OUT} =0A	-	4.2	10	
Output Noise Voltage	V _{NO}	V _{IN} =V _{OUT} +1.25V, I _{OUT} =40mA, 10Hz ≤ f ≤ 10kHz	-	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, V _{ripple} =1Vp-p V _{IN} =V _{OUT} +3V	60	80	-	dB
Dropout Voltage	V _D	I _{OUT} =1A, V _{IN} =0.95V _{OUT}	-	1.1	1.2	V
Temperature Stability	TCV _O	V _{IN} =V _{OUT} +1.5V, I _{OUT} =10mA	-	0.5	-	%

ELECTRICAL CHARACTERISTICS

KIA1117S/F18 (Unless otherwise specified, Tj=0~125 °C)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V _{OUT1}	V _{IN} =V _{OUT} +1.5V, I _{OUT} =10mA, Tj=25 °C	1.764	1.8	1.836	V
	V _{OUT2}	10mA ≤ I _{OUT} ≤ 1A, V _{OUT} +1.5V ≤ V _{IN} ≤ 10V	1.728	1.8	1.872	
Line Regulation	Reg Line	V _{OUT} +1.5V ≤ V _{IN} ≤ 10V, I _{OUT} =10mA	-	1	10	mV
Load Regulation	Reg Load	10mA ≤ I _{OUT} ≤ 1A, V _{IN} =V _{OUT} +2.0V	-	15	30	mV
Quiescent Current	I _{B1}	V _{IN} =V _{OUT} +1.25V, I _{OUT} =0A	-	4.2	10	mA
	I _{B2}	V _{IN} =10V, I _{OUT} =0A	-	4.2	10	
Output Noise Voltage	V _{NO}	V _{IN} =V _{OUT} +1.25V, I _{OUT} =40mA, 10Hz ≤ f ≤ 10kHz	-	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, V _{ripple} =1Vp-p V _{IN} =V _{OUT} +3V	60	80	-	dB
Dropout Voltage	V _D	I _{OUT} =1A, V _{IN} =0.95V _{OUT}	-	1.1	1.2	V
Temperature Stability	TCV _O	V _{IN} =V _{OUT} +1.5V, I _{OUT} =10mA	-	0.5	-	%

KIA1117S/F00~KIA1117S/F50

ELECTRICAL CHARACTERISTICS

KIA1117S/F25 (Unless otherwise specified, T_j=0~125 °C)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V _{OUT1}	V _{IN} =V _{OUT} +1.5V, I _{OUT} =10mA, T _j =25 °C	2.45	2.5	2.55	V
	V _{OUT2}	10mA ≤ I _{OUT} ≤ 1A, V _{OUT} +1.5V ≤ V _{IN} ≤ 10V	2.4	2.5	2.6	
Line Regulation	Reg Line	V _{OUT} +1.5V ≤ V _{IN} ≤ 10V, I _{OUT} =10mA	-	1	10	mV
Load Regulation	Reg Load	10mA ≤ I _{OUT} ≤ 1A, V _{IN} =V _{OUT} +2.0V	-	15	30	mV
Quiescent Current	I _{B1}	V _{IN} =V _{OUT} +1.25V, I _{OUT} =0A	-	4.2	10	mA
	I _{B2}	V _{IN} =10V, I _{OUT} =0A	-	4.2	10	
Output Noise Voltage	V _{NO}	V _{IN} =V _{OUT} +1.25V, I _{OUT} =40mA, 10Hz ≤ f ≤ 10kHz	-	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, V _{ripple} =1Vp-p V _{IN} =V _{OUT} +3V	60	80	-	dB
Dropout Voltage	V _D	I _{OUT} =1A, V _{IN} =0.95V _{OUT}	-	1.1	1.2	V
Temperature Stability	TCV _O	V _{IN} =V _{OUT} +1.5V, I _{OUT} =10mA	-	0.5	-	%

ELECTRICAL CHARACTERISTICS

KIA1117S/F28 (Unless otherwise specified, T_j=0~125 °C)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V _{OUT1}	V _{IN} =V _{OUT} +1.5V, I _{OUT} =10mA, T _j =25 °C	2.793	2.85	2.907	V
	V _{OUT2}	10mA ≤ I _{OUT} ≤ 1A, V _{OUT} +1.5V ≤ V _{IN} ≤ 10V	2.736	2.85	2.964	
Line Regulation	Reg Line	V _{OUT} +1.5V ≤ V _{IN} ≤ 10V, I _{OUT} =10mA	-	1	10	mV
Load Regulation	Reg Load	10mA ≤ I _{OUT} ≤ 1A, V _{IN} =V _{OUT} +2.0V	-	15	30	mV
Quiescent Current	I _{B1}	V _{IN} =V _{OUT} +1.25V, I _{OUT} =0A	-	4.2	10	mA
	I _{B2}	V _{IN} =10V, I _{OUT} =0A	-	4.2	10	
Output Noise Voltage	V _{NO}	V _{IN} =V _{OUT} +1.25V, I _{OUT} =40mA, 10Hz ≤ f ≤ 10kHz	-	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, V _{ripple} =1Vp-p V _{IN} =V _{OUT} +3V	60	80	-	dB
Dropout Voltage	V _D	I _{OUT} =1A, V _{IN} =0.95V _{OUT}	-	1.1	1.2	V
Temperature Stability	TCV _O	V _{IN} =V _{OUT} +1.5V, I _{OUT} =10mA	-	0.5	-	%

KIA1117S/F00~KIA1117S/F50

ELECTRICAL CHARACTERISTICS

KIA1117S/F33 (Unless otherwise specified, T_j=0~125 °C)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V _{OUT1}	V _{IN} =V _{OUT} +1.5V, I _{OUT} =10mA, T _j =25 °C	3.234	3.3	3.366	V
	V _{OUT2}	10mA ≤ I _{OUT} ≤ 1A, V _{OUT} +1.5V ≤ V _{IN} ≤ 10V	3.168	3.3	3.432	
Line Regulation	Reg Line	V _{OUT} +1.5V ≤ V _{IN} ≤ 10V, I _{OUT} =10mA	-	1	10	mV
Load Regulation	Reg Load	10mA ≤ I _{OUT} ≤ 1A, V _{IN} =V _{OUT} +2.0V	-	15	30	mV
Quiescent Current	I _{B1}	V _{IN} =V _{OUT} +1.25V, I _{OUT} =0A	-	4.2	10	mA
	I _{B2}	V _{IN} =10V, I _{OUT} =0A	-	4.2	10	
Output Noise Voltage	V _{NO}	V _{IN} =V _{OUT} +1.25V, I _{OUT} =40mA, 10Hz ≤ f ≤ 10kHz	-	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, V _{ripple} =1Vp-p V _{IN} =V _{OUT} +3V	60	80	-	dB
Dropout Voltage	V _D	I _{OUT} =1A, V _{IN} =0.95V _{OUT}	-	1.1	1.2	V
Temperature Stability	TCV _O	V _{IN} =V _{OUT} +1.5V, I _{OUT} =10mA	-	0.5	-	%

ELECTRICAL CHARACTERISTICS

KIA1117S/F50 (Unless otherwise specified, T_j=0~125 °C)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Output Voltage	V _{OUT1}	V _{IN} =V _{OUT} +1.5V, I _{OUT} =10mA, T _j =25 °C	4.9	5	5.1	V
	V _{OUT2}	10mA ≤ I _{OUT} ≤ 1A, V _{OUT} +1.5V ≤ V _{IN} ≤ 10V	4.8	5	5.2	
Line Regulation	Reg Line	V _{OUT} +1.5V ≤ V _{IN} ≤ 10V, I _{OUT} =10mA	-	1	10	mV
Load Regulation	Reg Load	10mA ≤ I _{OUT} ≤ 1A, V _{IN} =V _{OUT} +2.0V	-	15	30	mV
Quiescent Current	I _{B1}	V _{IN} =V _{OUT} +1.25V, I _{OUT} =0A	-	4.2	10	mA
	I _{B2}	V _{IN} =10V, I _{OUT} =0A	-	4.2	10	
Output Noise Voltage	V _{NO}	V _{IN} =V _{OUT} +1.25V, I _{OUT} =40mA, 10Hz ≤ f ≤ 10kHz	-	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, V _{ripple} =1Vp-p V _{IN} =V _{OUT} +3V	60	80	-	dB
Dropout Voltage	V _D	I _{OUT} =1A, V _{IN} =0.95V _{OUT}	-	1.1	1.2	V
Temperature Stability	TCV _O	V _{IN} =V _{OUT} +1.5V, I _{OUT} =10mA	-	0.5	-	%

KIA1117S/F00~KIA1117S/F50

Fig. 3 $V_D - I_{OUT}$

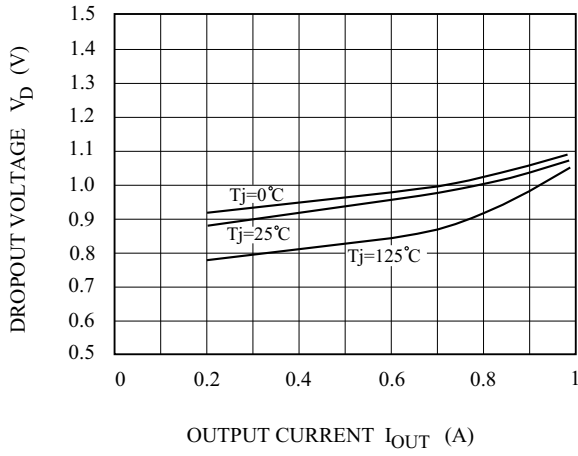


Fig. 4 $V_{REF} - T_j$

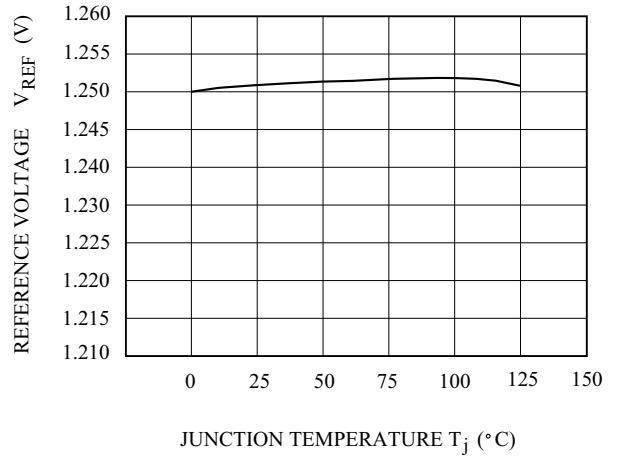


Fig. 5 $I_{OUT(MIN)} - T_j$

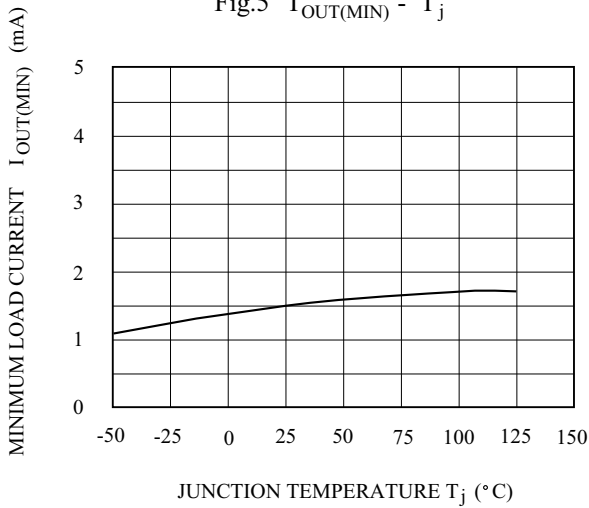


Fig. 6 $I_{ADJ} - T_j$

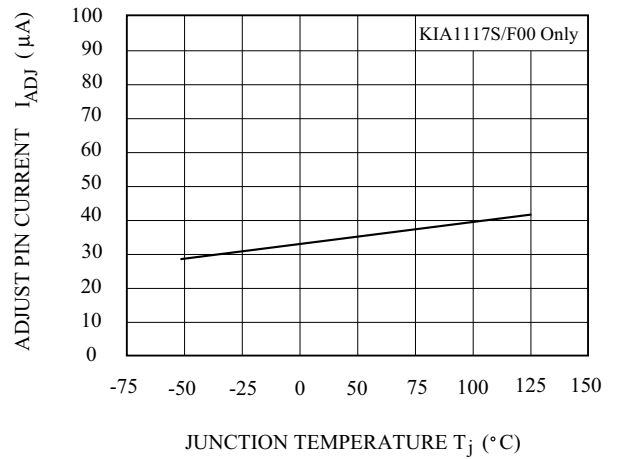


Fig. 7 $I_{SC} - T_j$

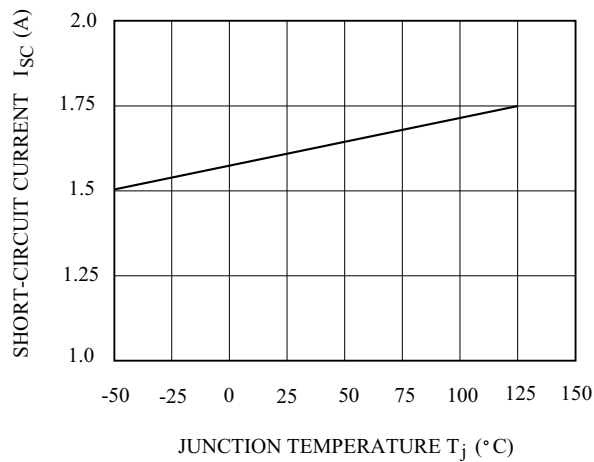
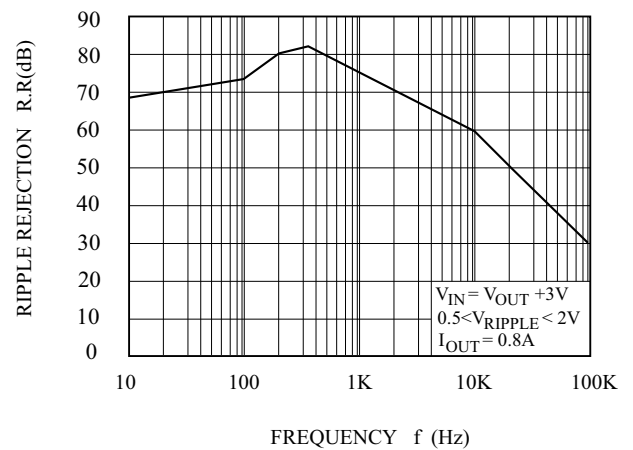


Fig. 8 R.R-f



KIA117S/F00~KIA117S/F50

Fig.9 P_D - T_a (S-Type : SOT-223)

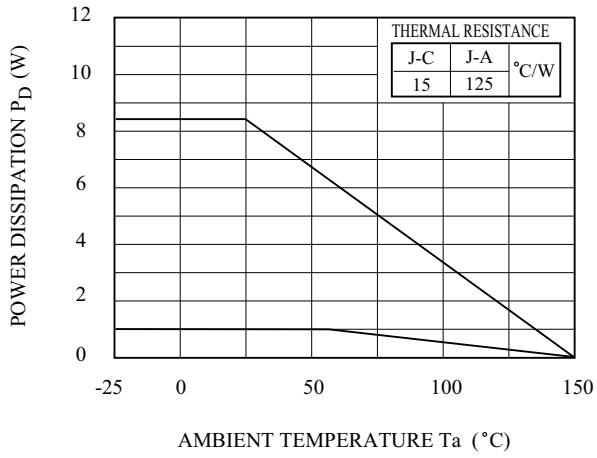


Fig.10 P_D - T_a (F-Type : DPAK)

