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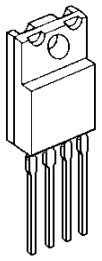
ADJUSTABLE LOW DROPOUT VOLTAGE REGULATOR

■ GENERAL DESCRIPTION

The NJM2397 is adjustable low dropout voltage regulator. The output current is up to 1.5A and dropout voltage is 0.2Vtyp. at Io=0.5A.

The NJM2397 is suitable for power module, TV, Display, car stereo and low power applications.

■ PACKAGE OUTLINE

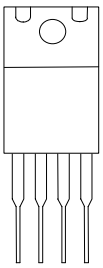


NJM2397F

■ FEATURE

- Low Dropout Voltage ΔV_{I-O}=0.2V typ. at Io=0.5A
- Output Current Io(max.)=1.5A
- Reference Voltage Vref=1.29V typ.
- Internal Short Circuit Current Limit
- Internal Overvoltage Protection
- Internal Thermal Overload Protection
- Bipolar Technology
- Package Outline TO-220F(4pin)

■ PIN CONFIGURATION



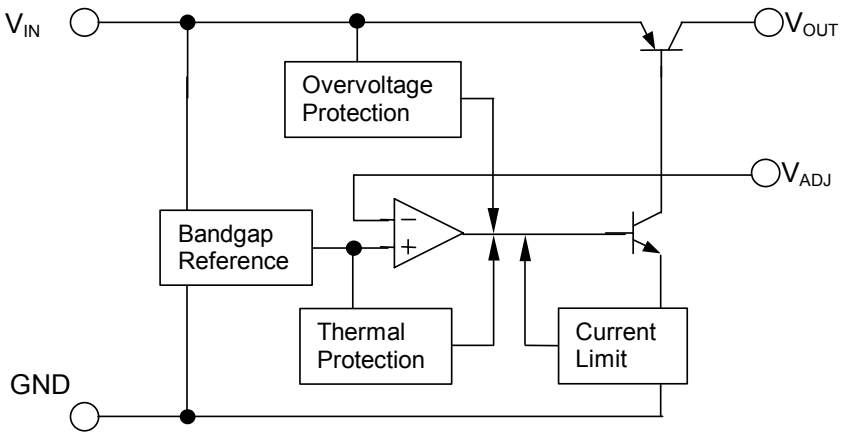
1 2 3 4

NJM2397F

PIN FUNCTION

1. V_{IN}
2. V_{OUT}
3. GND
4. ADJ

■ EQUIVALENT CIRCUIT



■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

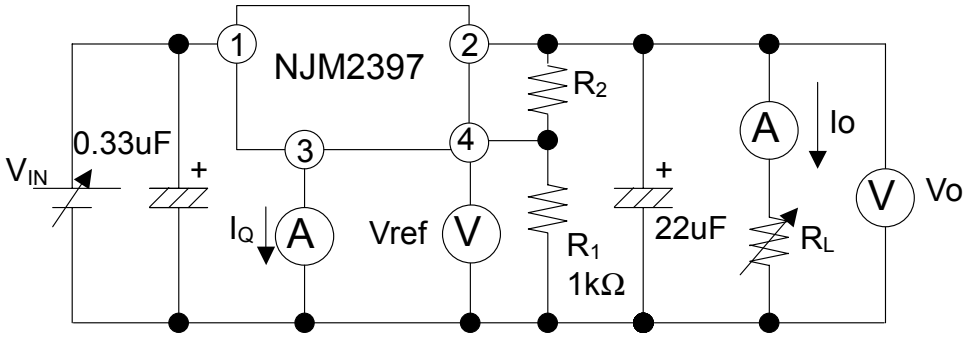
PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V_{IN}	+35	V
Adjust terminal Voltage	V_{ADJ}	+6	V
Output Current	Io	1.5	A
Power Dissipation	P_D	18(Tc<50°C)	W
Operating Junction Temperature Range	Tj	-40 to +150	°C
Operating Temperature Range	Topr	-40 to 85	°C
Storage Temperature Range	Tstg	-50 to 150	°C

■ ELECTRICAL CHARACTERISTICS (V_{IN}=15V, Vo=10V, Io=0.5A, R1=1kΩ, C_{IN}=0.33uF, Co=22uF, Tj=25°C)

Measurement is to be conducted is pulse testing.

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Input Voltage	V_{IN}		3.8	-	35	V
Output Voltage	Vo		1.5	-	20	V
Reference Voltage	Vref		1.238	1.29	1.342	V
Line Regulation	$\Delta Vo/\Delta V_{IN}$	V_{IN}=Vo+1V~Vo+17V	-	0.04	0.16	%/V
Load Regulation	$\Delta Vo/\Delta Io$	V_{IN}=Vo+2V, Io=0A~1.5A	-	0.2	1.4	%/A
Average Temperature Coefficient of Output Voltage	$\Delta Vo/\Delta T$	Tj=0~125°C	-	±0.02	-	%/°C
Quiescent Current	I_Q	Io=0A	-	-	5	mA
Dropout Voltage	ΔV_{I-O}	Io=0.5A	-	0.2	0.5	V
Ripple Rejection	RR	Vin=Vo+2V, ein=0.5Vrms, f=120Hz	45	55	-	dB

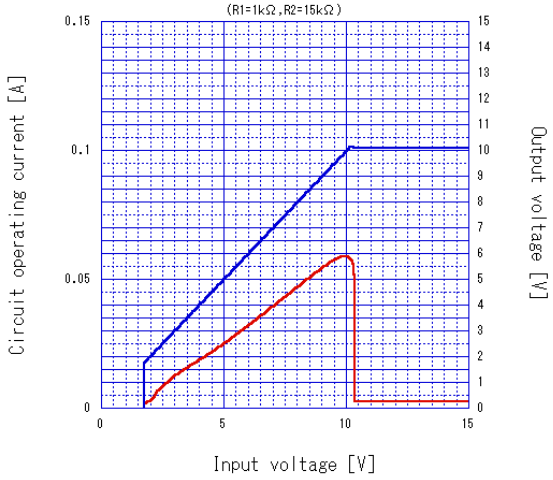
■ TEST CIRCUIT



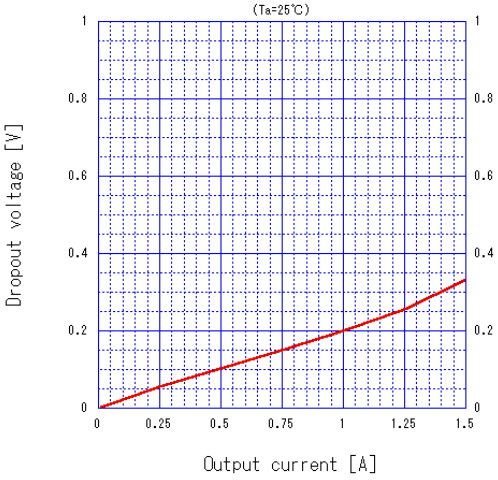
Vo = Vref × (1 + R2/R1)

■ TYPICAL CHARACTERISTICS

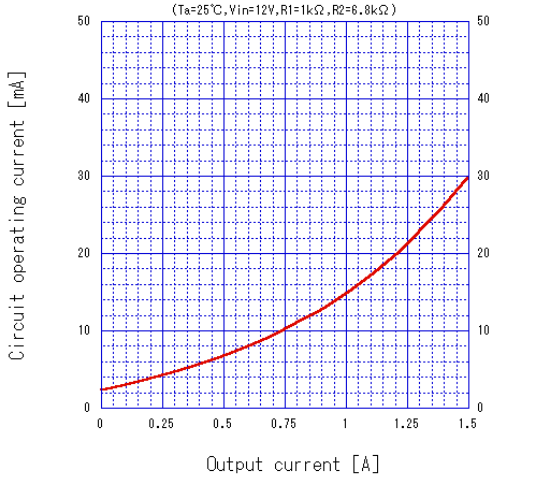
NJM2397(Vo=10V)
Circuit operating current/Output voltage vs.Input voltage
(R1=1kΩ,R2=15kΩ)



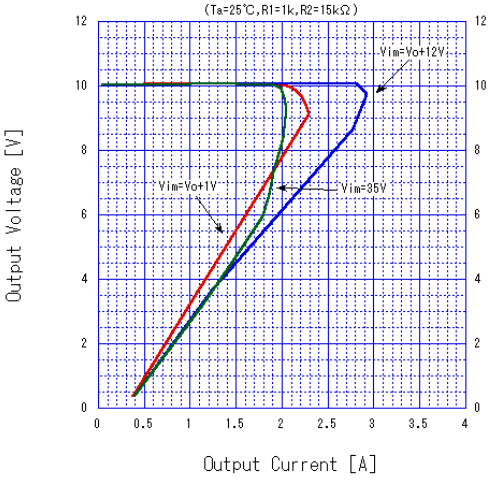
NJM2397
Dropout voltage vs.Output current
(Ta=25℃)



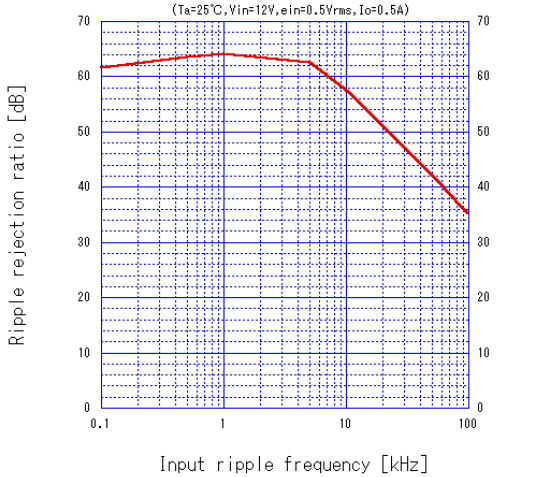
NJM2397(Vo=10V)
Circuit operating current vs.Output current
(Ta=25℃,Vin=12V,R1=1kΩ,R2=6.8kΩ)



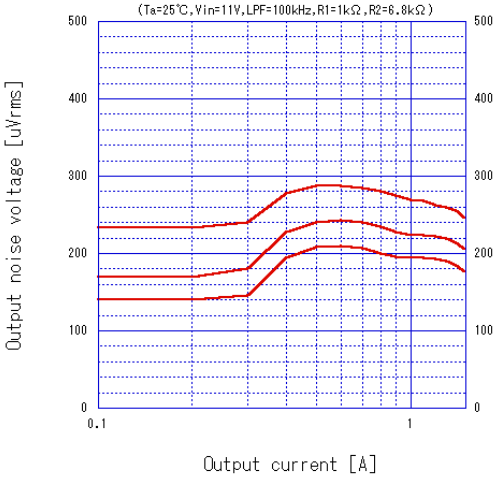
NJM2397(Vo=10V)
Overcurrent Protection Characteristics
(Ta=25℃,R1=1k,R2=15kΩ)



NJM2397(Vo=10V)
Ripple rejection ratio vs.Input ripple frequency
(Ta=25℃,Vin=12V,ein=0.5Vrms,Io=0.5A)

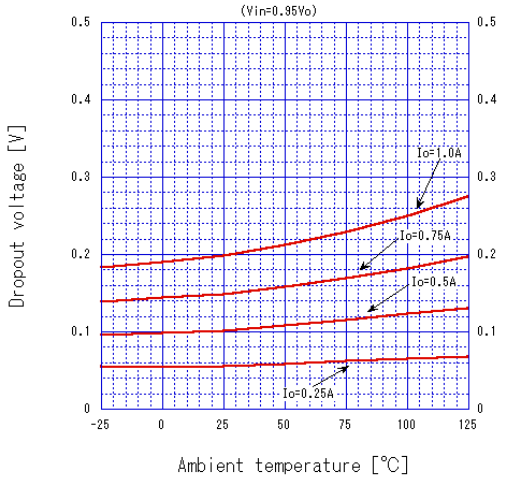


NJM2397(Vo=10V)
Output noise voltage vs.Output current
(Ta=25℃,Vin=11V,LPF=100kHz,R1=1kΩ,R2=6.8kΩ)

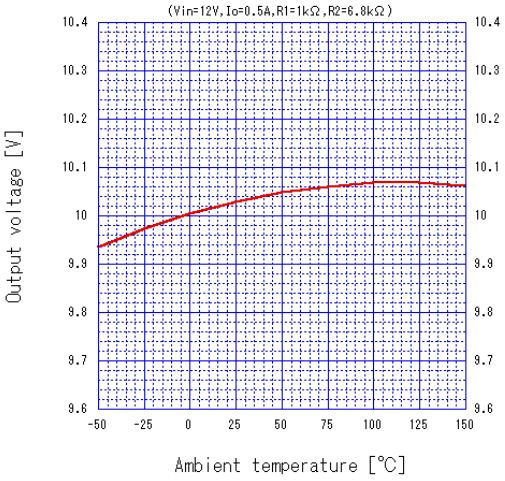


■ TYPICAL CHARACTERISTICS

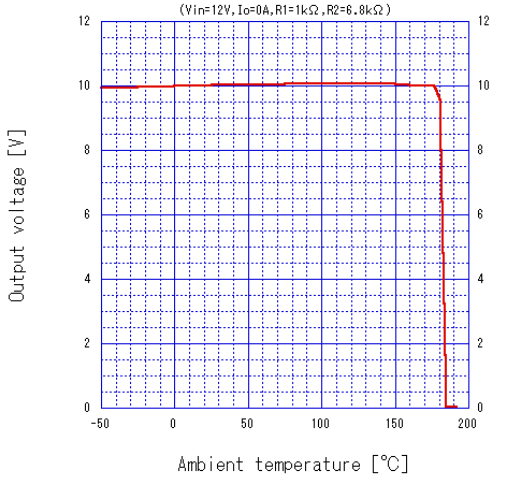
NJM2397
Dropout voltage vs. Ambient temperature
(Vin=0.95Vo)



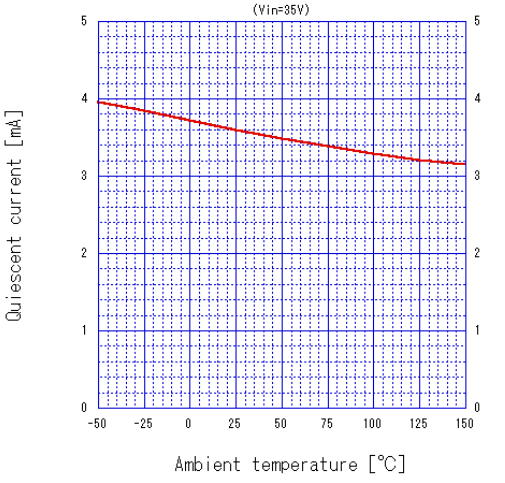
NJM2397(Vo=10V)
Output voltage vs.Ambient temperature
(Vin=12V,Io=0.5A,R1=1kΩ,R2=6.8kΩ)



NJM2397(Vo=10V)
Overtemperature Protection Characteristics
(Vin=12V,Io=0A,R1=1kΩ,R2=6.8kΩ)



NJM2397
Quiescent current vs.Ambient temperature
(Vin=35V)



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