ELM1085xG Bipolar 3A LDO Voltage regulator

■General description

ELM1085xG is positive and bipolar LDO three terminal voltage regulator with 3A output current capability. This series includes thermal shutdown protection and short circuit current limiter. ELM1085 series is available in fixed version (ELM1085xG-3.3 VOUT:3.3V) and adjustable version (ELM1085xG: Vout=Vref3.3 (1+R2/R1)+Iadj×R2 Max.5.55V).

■Features

- Output voltage range
  (fixed) : 3.3V
  (adj.) : 1.27V～5.55V
- Line regulation : Typ. 0.5%
- Load regulation : Typ. 0.5%
- LDO voltage : 1.3V typical at up to 3A
- Package : TO-252
  TO-263-2
  TO-263-3

■Application

- SCSI terminator
- Linear regulator
- Battery chargers
- Micro-controller

■Maximum absolute ratings

Parameter	Symbol	Limit	Unit
Power supply voltage	Vcc	7	V
Power dissipation	Pd	Internally limited	W
Thermal resistance junction to case	Rqjc	5	℃/W
Thermal resistance junction to ambient	Rqja	60 (TO-263-2) 60 (TO-263-3) 70 (TO-252)	℃/W
Operating junction temperature	Top	0～+125	℃
Storage temperature	Tstg	-40～+150	℃
Lead temperature(soldering 10s.)	Tlead	260	℃

■Selection guide

ELM1085xG-33-S, ELM1085xG-S

Symbol		
a	Package	D : TO-252 S : TO-263-2 S3: TO-263-3
b	Product version	G
c,d	Output voltage	33: Vout=3.3V
e	Taping direction	S : Refer to PKG file

- Fixed version

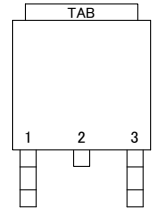
ELM1085 x G - 3 3 - S
↑ ↑ ↑ ↑ ↑
a b c d e

- Adj. version

ELM1085 x G - S
↑ ↑ ↑
a b e

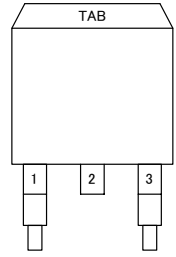
■Pin configuration

TO-252 (TOP VIEW)



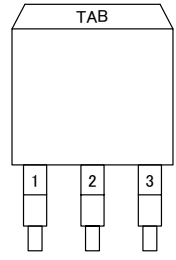
Pin No.	Pin name
1	ADJ/GND
2/TAB	VOUT
3	VIN

TO-263-2 (TOP VIEW)



Pin No.	Pin name
1	ADJ/GND
2/TAB	VOUT
3	VIN

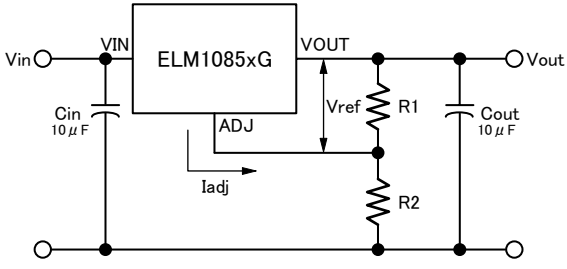
TO-263-3 (TOP VIEW)



Pin No.	Pin name
1	ADJ/GND
2/TAB	VOUT
3	VIN

■Typical application

・Adjustable type

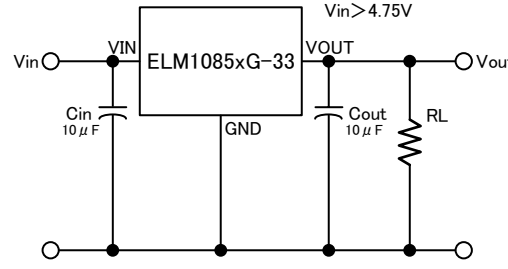


Vo=Vref (1＋R2/R1)＋Iadj×R2

＊Cin needed if device is far from filter capacitors.
＊Cout required for stability.
＊We recommend to use Min. 10μF tantalum condenser.

・Fixed type

Vout=3.3V



＊We recommend to use Min. 10μF tantalum condenser.

■Electrical characteristics

Vout=Adjustable Top=25℃

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reference voltage	Vref	Iout=10mA, Vin=5V	1.23	1.25	1.27	V
Line regulation	ΔVout/ΔVin	Iout=10mA, Vin=(Vout+1.5V)～7V		0.5	2.0	%
Load regulation	ΔVout/ΔIout	Iout=10mA～3A, Vin-Vout=3V		0.5	2.5	%
Dropout voltage	Vdif	Iout=3A, △Vref=1%		1.30	1.45	V
Current limit	Ilim	Vin-Vout=2V	4	5		A
Min.load current	Il (min)	1.5V≦(Vin-Vout)≦5.75V		10		mA
Adjust Pin current	Iadj			55	100	μA
RMS output noise	Vn			Vout×0.003%		mV
Ripple rejection ratio	RR	f=120Hz, Vin=5V, Iout=3A, Cout=22μF	60	72		dB

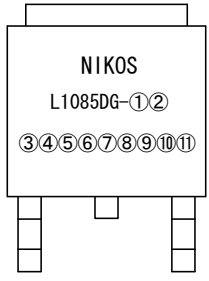
Vout=3.3V (ELM1085xG-33) Top=25℃

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Output voltage	Vout	Iout=10mA, Vin=5V	3.234	3.300	3.367	V
Line regulation	ΔVout/ΔVin	Iout=10mA, Vin=4.8V～7V		0.5	2.0	%
Load regulation	ΔVout/ΔIout	Iout=10mA～3A, Vin-Vout=3V		0.5	2.5	%
Dropout voltage	Vdif	Iout=3A, △Vref=1%		1.3	1.5	V
Current limit	Ilim	Vin-Vout=2V	4	5		A
Min.load current	Il (min)	1.5V≦(Vin-Vout)≦5.75V		10		mA
RMS output noise	Vn			Vout×0.003%		mV
Ripple rejection ratio	RR	f=120Hz, Vin=5V, Iout=3A, Cout=22μF	60	72		dB

■Marking

・TO-252 package : ELM1085DG-33
(Fixed type)

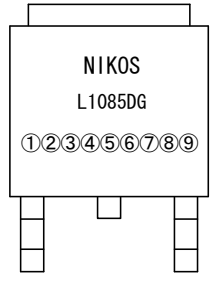
TO-252



L : LDO
1085 : Product No.code
D : PKG type (TO-252)
G : Pb-Free package mark
①, ② : Output voltage (3,3=3.3V fixed)
③～⑪ : Production code

・TO-252 package : ELM1085DG
(Adjustable type)

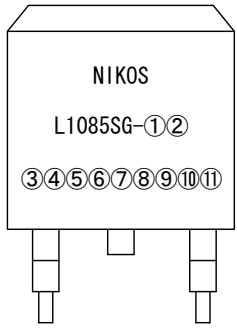
TO-252



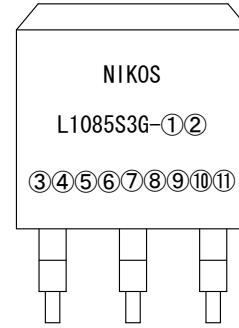
L : LDO
1085 : Product No.code
D : PKG type (TO-252)
G : Pb-Free package mark
①～⑨ : Production code

・TO-263-2 package : ELM1085SG-33 (Fixed type)
・TO-263-3 package : ELM1085SG-33 (Fixed type)

TO-263-2



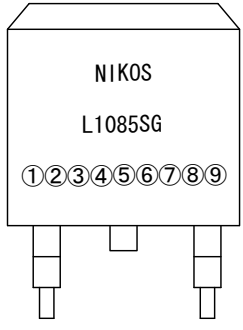
TO-263-3



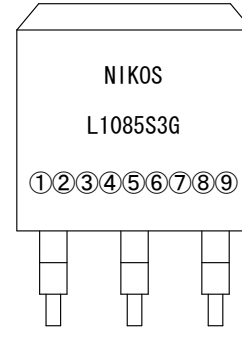
L	: LDO
1085	: Product No.code
S(S3)	: PKG type (S : TO-263-2, S3 : TO-263-3)
G	: Pb-Free package mark
① , ②	: Output voltage (3,3=3.3V fixed)
③～⑪	: Production code

・TO-263-2 package : ELM1085SG (Adjustable type)
・TO-263-3 package : ELM1085SG (Adjustable type)

TO-263-2



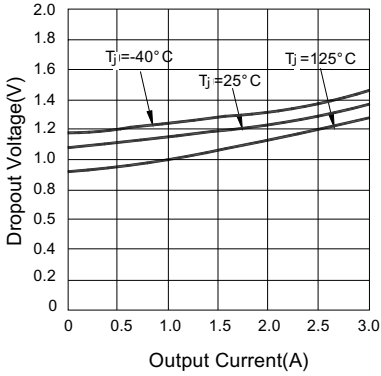
TO-263-3



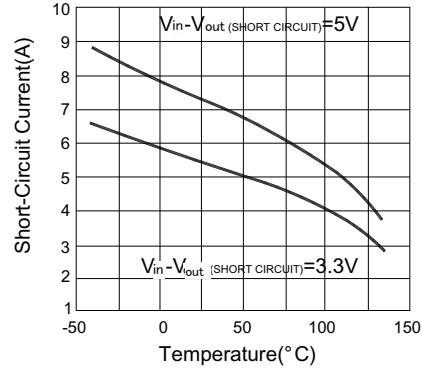
L	: LDO
1085	: Product No.code
S(S3)	: PKG type (S : TO-263-2, S3 : TO-263-3)
G	: Pb-Free package mark
①～⑨	: Production code

■Typical characteristics

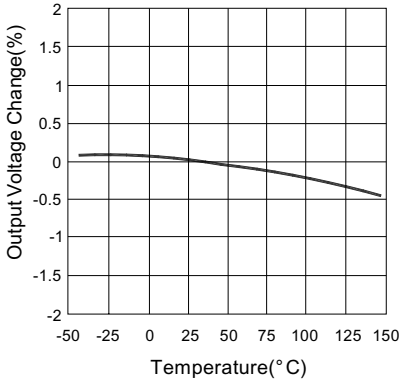
Dropout Voltage vs. Output Current



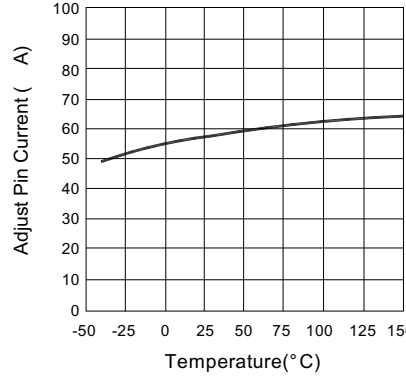
Short-Circuit Current vs.Temperature



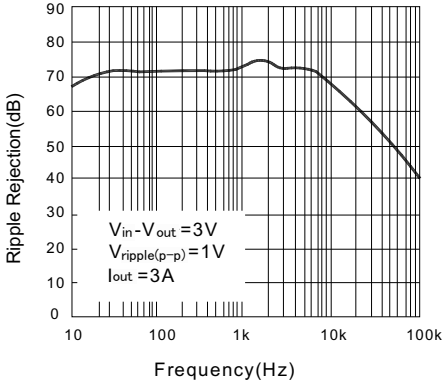
Percent Change in Output Voltage vs.Temperature



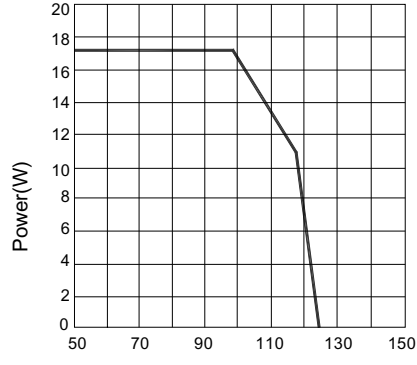
Adjust Pin Current vs.Temperature



Ripple Rejection vs. Frequency



Maximum Power Dissipation*



*as Limited by Maximum Junction Temperature