

Positive LDO regulator IC
正出力低飽和レギュレータIC

TK112xxCM-G, TK112xxCU-G, TK113xxCM-G

DESCRIPTION

The TK112xxCM/U-G and TK113xxCM-G are low dropout linear regulators with on/off control, which can supply 300mA load current. The output voltage, trimmed with high accuracy, is available from 1.5 to 10.0V in 0.1V steps. On/off control of the TK112xxCM/U-G is active high and that of the TK113xxCM-G is active low.

TK112xxCM/U-G, TK113xxCM-Gシリーズは、出力電流300mAを安定に供給できるon/offコントロール付低飽和レギュレータICです。出力電圧は内部固定で高精度にトリミングされ、1.5Vより10.0Vの間で0.1Vステップで設定できます。on/offコントロールはTK112xxCM/CU-G, TK113xxCM-Gがそれぞれアクティブハイ、アクティブローになっています。

FEATURES




- High Precision Output Voltage of $\pm 1.5\%$ or $\pm 50\text{mV}/\pm 2.0\%$ or $\pm 60\text{mV}$
- Superior Phase Compensation to Previous Model
- Very Good Stability: Ceramic capacitor can be used.
- Very Low Dropout Voltage: $V_{\text{DRO}}=105\text{mV}$ at $I_{\text{OUT}}=100\text{mA}$
- Active High On/off Control
- Excellent Ripple Rejection Ratio: -80dB at 1kHz
- Very Low Noise with Noise Pass Pin
- Short Circuit Protection (Over Current Protection)
- Thermal Shutdown (Over Heat Protection)
- 高精度出力電圧: $\pm 1.5\%$ or $\pm 50\text{mV}/\pm 2.0\%$ or $\pm 60\text{mV}$
- 位相補正をより高度化
- 高い安定性: セラミックコンデンサ使用可能
- 少ない入出力間電圧降下: $V_{\text{DRO}}=105\text{mV}$ at $I_{\text{OUT}}=100\text{mA}$
- 出力on/offコントロール: High-On
- 優れたリップルリジェクション: -80dB at 1kHz
- ノイズパス端子で低ノイズアプリケーション可
- 短絡保護機能(過電流保護)
- サーマルシャットダウン機能(過熱保護)

APPLICATIONS

- Battery Powered Systems
- Mobile Communication Systems: Cordless Phone, GSM, PHS, PDC, CDMA, Base Station of Mobile Phones etc.
- Industrial Equipment: Personal Computer, Barcode Reader etc.
- Measurement System etc.
- バッテリー駆動機器
- 移動体通信機器用: コードレスホン、GSM、PHS、PDC、CDMA、携帯電話基地局 etc.
- 産業機器用: パソコン、バーコードリーダー etc.
- 計測器 etc

PACKAGE OUTLINE

ORDERING INFORMATION

Part name	Package	Marking	Pin configuration	Ordering information																																				
TK112xxCM-G	 SOT23L-6	Rxx	See next page	<table border="1" style="width: 100%;"> <tr> <td style="text-align: center;">T</td><td style="text-align: center;">K</td><td style="text-align: center;">1</td><td style="text-align: center;">1</td><td style="text-align: center;">x</td><td style="text-align: center;">x</td><td style="text-align: center;">C</td><td style="text-align: center;">M</td><td style="text-align: center;">C</td><td style="text-align: center;">L</td><td style="text-align: center;">-</td><td style="text-align: center;">G</td> </tr> <tr> <td colspan="2">Number</td> <td colspan="2">2, 3</td> <td colspan="2">Voltage code</td> <td colspan="2">Ex. 2.5V:25, 5.0V:50</td> <td colspan="2">Package code</td> <td colspan="2">M: SOT23L-6</td> </tr> <tr> <td colspan="2">Environment code</td> <td colspan="2">G: Lead free</td> <td colspan="2">Storage direction</td> <td colspan="2">L: Left type</td> <td colspan="2">Temperature range</td> <td colspan="2">C: $T_A=25^\circ\text{C}$, I: Full</td> </tr> </table>	T	K	1	1	x	x	C	M	C	L	-	G	Number		2, 3		Voltage code		Ex. 2.5V:25, 5.0V:50		Package code		M: SOT23L-6		Environment code		G: Lead free		Storage direction		L: Left type		Temperature range		C: $T_A=25^\circ\text{C}$, I: Full	
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TK112xxCU-G	 SOT89-5	R□ xx																																						

* "xx" means voltage code and "□" means Lot No.

"xx"は電圧コード、“□”はロットナンバーを示しています。

ABSOLUTE MAXIMUM RATINGS

Parameter	項目	Symbol	記号	Rating	定格	Unit	単位	Remarks	備考
Operating Voltage Range	動作電圧範囲	V_{OP}		1.8 to 14.5		V			
Operating Temperature Range	動作温度範囲	T_{OP}		-30 to +80		°C		C spec	
				-40 to +85				I spec	
Power Dissipation	許容消費電力	P_D		600		mW		SOT23L-6	
				900				SOT89-5	

ELECTRICAL CHARACTERISTICS

$V_{IN}=V_{OUT.TYP}+1V, V_{CONT}=1.8V, T_A=25^{\circ}C$

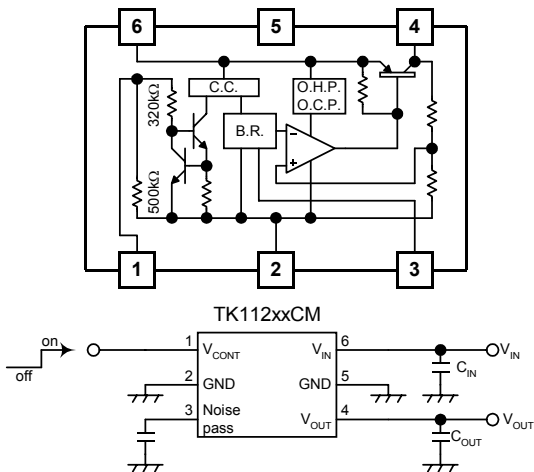
Parameter	項目	Symbol	記号	Value			Units	Conditions
				MIN	TYP	MAX		
Dropout Voltage	入出力間電圧降下 *1	V_{DROP}		105	170		mV	$I_{OUT}=100mA$
Maximum Output Current	最大出力電流 *2	$I_{OUT.MAX}$	380	480			mA	$V_{OUT}=V_{OUT.TYP}\times 0.9$
Quiescent Current	電源電流	I_Q		65	90		μA	TK112xxCM/U TK113xxCM $I_{OUT}=0mA$
Standby Current	スタンバイ電流	I_{STB}		0	0.1		μA	
Ground Pin Current	無効電流	I_{GND}		1.8	3.0		mA	$I_{OUT}=100mA$
Control Current	コントロール電流	I_{CONT}			5	10	μA	TK112xxC, $V_{CONT}=1.8V$ TK113xxC, $V_{CONT}=V_{IN}-1.8V$
					1.0	5.0		
Control Voltage	コントロール電圧	V_{CONT}		1.6			V	TK112xxC, V_{OUT} on state
						0.6		TK112xxC, V_{OUT} off state
				$V_{IN}-1.8$				TK113xxC, V_{OUT} on state
						$V_{IN}-0.6$		TK113xxC, V_{OUT} off state

*1 For $V_{OUT}\leq 2.0V$, no regulations 出力電圧2.0V以下の製品は入出力電圧降下項目の規格はありません。

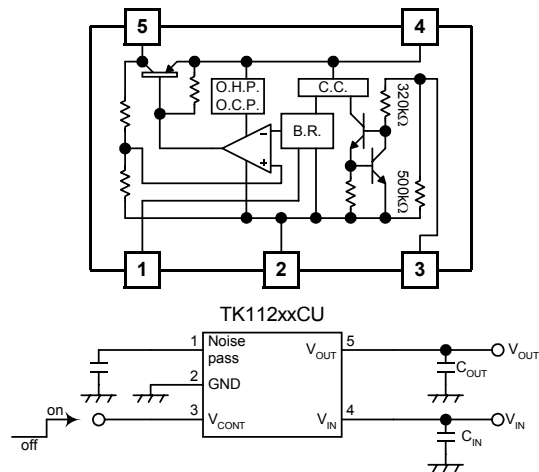
*2 The maximum output current is limited by power dissipation. 最大電流値は許容消費電力に制限されます。

BLOCK DIAGRAM

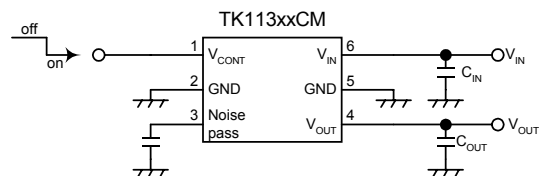
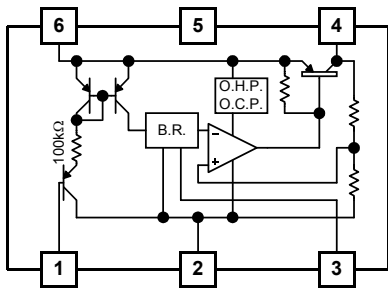
■ TK112xxCM



■ TK112xxCU



■ TK113xxCM



* C.C....Control Circuit, O.H.P....Over Heat Protection, O.C.P....Over Current Protection, B.G....Band gap Reference