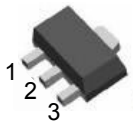
HIGH PSRR POSITIVE VOLTAGE REGULATOR

FEATURES

- Fixed Output Voltage 6.0V
- Output Accuracy ±3%
- Higher Output Current
- Good PSRR
- Thermal Overload Protection
- Short Circuit Current Limiting
- Output Transistor SOA Protection



SOT-89

DESCRIPTION

The ***STComponet*** ST78R06 is an integrated-circuit voltage regulator that designed for a wide range of applications with good power supply reject ratio. These applications include local and on-card regulation for elimination of noise and distribution problems associated with single-point regulation. When with adequate heat-sinking, this voltage regulator can deliver in excess of 200mA output current.

This voltage regulator employ built-in current limiting, thermal shutdown protection that makes the device essentially immune to damage from output overloads.

TYPICAL APPLICATION CIRCUIT

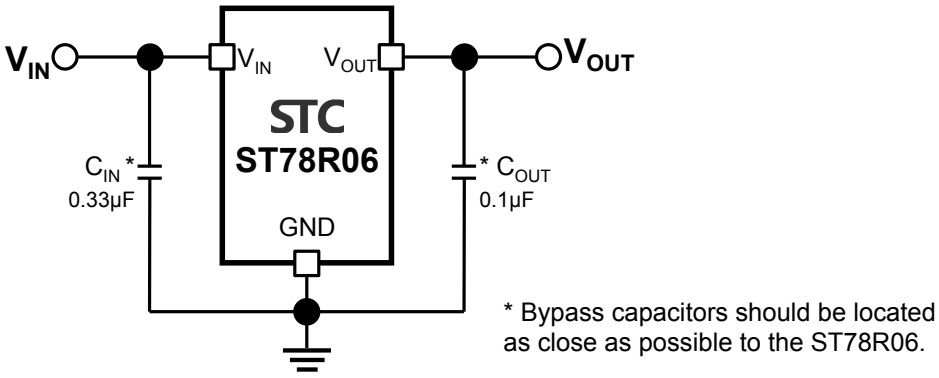


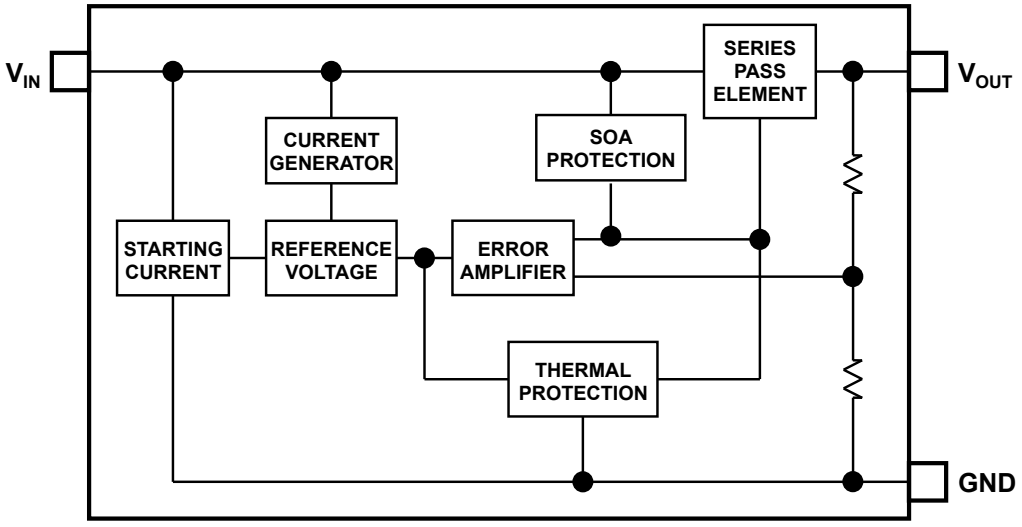
Figure 1: Basic Application Circuit

DEVICE SUMMARY

Ordering Code	Package Material	Pin Configuration			Package Type	Shipping	Marking (1)
		V_{OUT}	GND	V_{IN}			
ST78R06P	Lead free	1	2	3	SOT-89	Taping reel	78R06 YM

Note 1: **Y**: Year code
M: Month code

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS (2)

T_A = 25°C, All voltage respect to GND unless otherwise specified.

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V_{IN}	30	V
Power Dissipation (3)	P_D	Internal limited	
Maximum Junction Temperature	T_{JMAX}	150	°C
Operating Junction Temperature Range	T_{opr}	-40 ~ +125	°C
Storage Temperature Range	T_{stg}	-55 ~ +150	°C
Soldering Temperature & Time	T_{solder}	260°C, 10 sec.	

Note 2: Absolute Maximum Ratings are those values beyond which the device could be permanently damaged. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

Note 3: Maximum power dissipation is a function of T_{JMAX}, $R_{\theta JA}$ and T_A. The maximum allowable power dissipation at any allowable ambient temperature is $P_D = (T_{JMAX} - T_A)/R_{\theta JA}$. Due to variations in individual device electrical characteristics and thermal resistance, the built-in thermal-overload protection may be activated at power levels slightly above or below the rated dissipation. $R_{\theta JA}$ will depend upon the printed circuit layout.

Thermal Data

PARAMETER	SYMBOL	RATINGS	UNIT
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	51	°C/W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	200	°C/W

ELECTRICAL CHARACTERISTICS

T_A = 25°C, V_{IN} = 10V, I_O = 40mA, C_{IN} = 0.33μF, C_{OUT} = 0.1μF, unless otherwise noted.

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Output Voltage	V_O			5.8	6	6.2	V
		8.0V ≤ V_{IN} ≤ 20V, I_O = 1mA ~ 40mA		5.75	6	6.25	
Load Regulation	ΔV_O	I_O = 1mA ~ 200mA			14	100	mV
		I_O = 1mA ~ 80mA			5	50	
Line Regulation	ΔV_O	I_O = 40mA	8.0V ≤ V_{IN} ≤ 20V		8	100	mV
			9.0V ≤ V_{IN} ≤ 13V		5	50	
Quiescent Current	I_Q	T_J = 25°C			3.8	8	mA
Quiescent Current Change	ΔI_Q	8.0V ≤ V_{IN} ≤ 20V				1.5	mA
		1mA ≤ I_O ≤ 100mA				0.5	
Output Noise Voltage	V_N	10Hz ≤ f ≤ 100kHz			49		μV
Ripple Rejection	RR	8.0V ≤ V_{IN} ≤ 18V, f = 120Hz		62	80		dB
Short-Circuit Output Current	I_{Short}	T_J = 25°C			270		mA
Dropout Voltage	V_D	T_J = 25°C			2		V
Average Temperature Coefficient of Output Voltage	$\Delta V_O/\Delta T_A$	I_O = 5mA			-0.35		mV/°C

PACKAGE DIMENSION

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Unit: Inches [Millimeters]