

TO-220 Plastic-Encapsulate Voltage Regulator

FS7806CTG Three-terminal positive voltage regulator

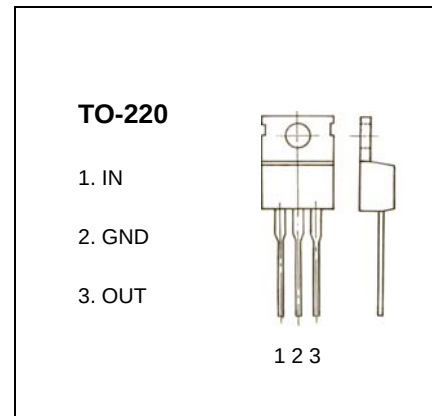
FEATURES

Maximum Output current I_{OM} : 1.5 A

Output voltage V_o : 6 V

Continuous total dissipation

P_D : 2 W ($T_J = 25^\circ\text{C}$)



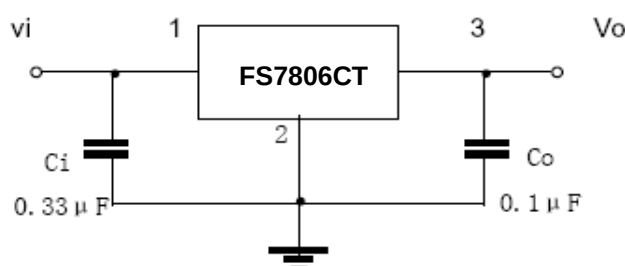
ABSOLUTE MAXIMUM RATINGS(operating temperature range applies unless otherwise specified)

Parameter	Symbol	Value	Unit
Input Voltage	V_i	35	V
Thermal resistance junction-air	$R_{\theta JA}$	65	$^\circ\text{C}/\text{W}$
Thermal resistance junction-cases	$R_{\theta JC}$	5	$^\circ\text{C}/\text{W}$
Operating Junction Temperature Range	T_{OPR}	0–150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	–65–150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS($V_i=10\text{V}$, $I_o=500\text{mA}$, $0^\circ\text{C} < T_J < 125^\circ\text{C}$, $C_i=0.33\mu\text{F}$, $C_o=0.1\mu\text{F}$, unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Output voltage	V_o	$T_J=25^\circ\text{C}$	5.75	6	6.25	V
		$8\text{V} \leq V_i \leq 21\text{V}$, $I_o=5\text{mA}-1\text{A}$, $P \leq 15\text{W}$	5.7	6	6.3	V
Load Regulation	ΔV_o	$T_J=25^\circ\text{C}$, $I_o=5\text{mA}-1.5\text{A}$		14	120	mV
		$T_J=25^\circ\text{C}$, $I_o=250\text{mA}-750\text{mA}$		4	60	mV
Line regulation	ΔV_o	$8\text{V} \leq V_i \leq 25\text{V}$, $T_J=25^\circ\text{C}$		5	120	mV
		$9\text{V} \leq V_i \leq 13\text{V}$, $T_J=25^\circ\text{C}$		1.5	60	mV
Quiescent Current	I_q	$T_J=25^\circ\text{C}$		4.3	8	mA
Quiescent Current Change	ΔI_q	$8\text{V} \leq V_i \leq 25\text{V}$			1.3	mA
		$5\text{mA} \leq I_o \leq 1\text{A}$			0.5	mA
Output voltage drift	$\Delta V_o/\Delta T$	$I_o=5\text{mA}$		-0.8		mV/ $^\circ\text{C}$
Output Noise Voltage	V_N	$10\text{Hz} \leq f \leq 100\text{KHz}$		45		μV
Ripple Rejection	RR	$9\text{V} \leq V_i \leq 19\text{V}$, $f=120\text{Hz}$, $T_J=0-125^\circ\text{C}$	59	75		dB
Dropout Voltage	V_d	$T_J=25^\circ\text{C}$, $I_o=1\text{A}$		2		V
Output resistance	R_o	$f=1\text{KHz}$		19		$\text{m}\Omega$
Short Circuit Current	I_{sc}	$V_i=35\text{V}$, $T_J=25^\circ\text{C}$		550		mA
Peak Current	I_{pk}	$T_J=25^\circ\text{C}$		2.2		A

TYPICAL APPLICATION



Typical Characteristics

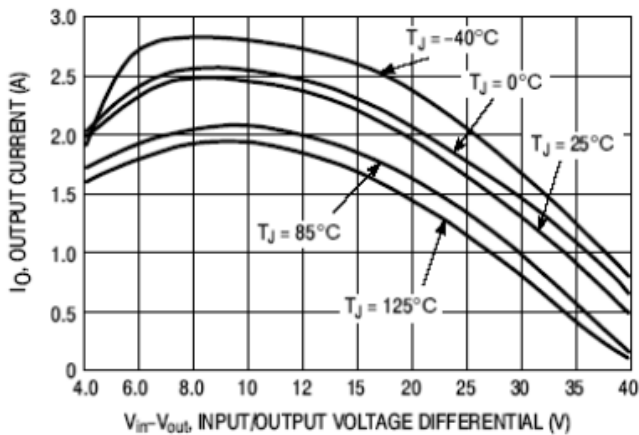


Figure 1 Peak Output Current as a Function of Input/Output Differential Voltage

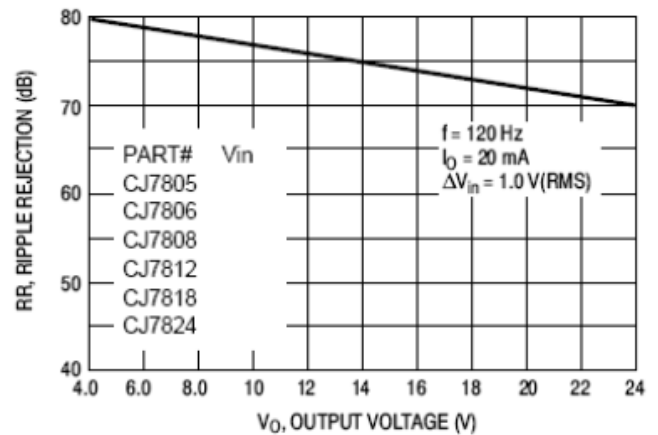


Figure 2 Ripple Rejection as a Function of Output Voltages

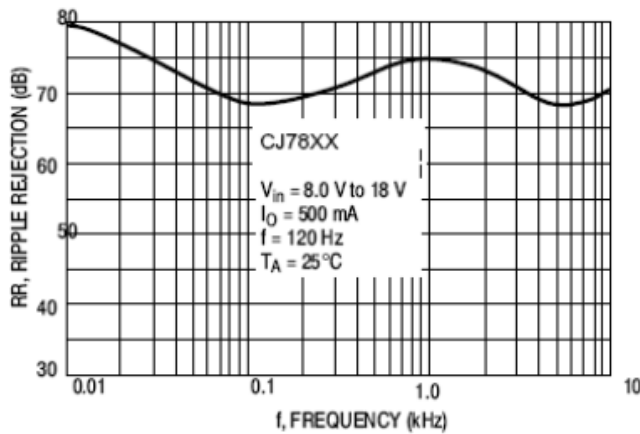


Figure 3 Ripple Rejection as a Function of Frequency

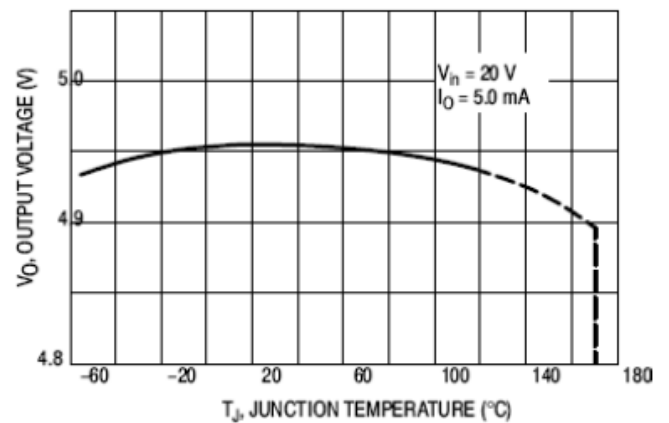


Figure 4 Output Voltage as a Function of Junction Temperature

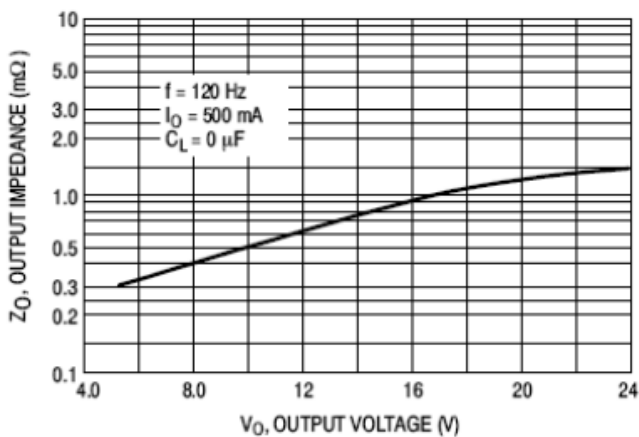


Figure 5 Output Impedance as a Function of Output Voltage

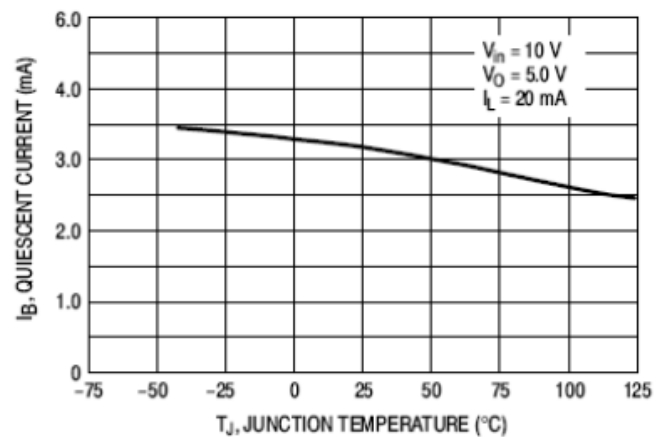


Figure 6 Quiescent Current as a Function of Temperature