

TO-220

ITO-220

**TO-263
(D²PAK)**

Pin Definition:

1. Input
2. Ground (tab)
3. Output

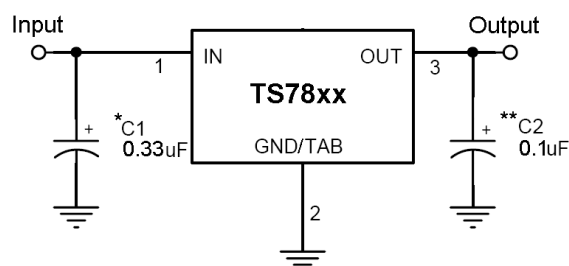
General Description

The TS7800 series voltage regulators are monolithic integrated circuits designed as fixed-voltage regulators for a wide variety of applications including local, on-card regulation. These regulators employ internal current limiting, thermal shutdown, and safe-area compensation. With adequate heatsink they can deliver output currents up to 1 ampere. Although designed primarily as a fixed voltage regulator, these devices can be used with external components to obtain adjustable voltages and currents.

Features

- Output Voltage Range 5 to 24V
- Output current up to 1A
- No external components required
- Internal thermal overload protection
- Internal short-circuit current limiting
- Output transistor safe-area compensation
- Output voltage offered in 4% tolerance

Standard Application Circuit



A common ground is required between the input and the output voltages. The input voltage must remain typically 2.0V above the output voltage even during the low point on the Input ripple voltage.

XX = these two digits of the type number indicate voltage.

* = Cin is required if regulator is located an appreciable distance from power supply filter.

** = Co is not needed for stability; however, it does improve transient response.

Ordering Information

Part No.	Package	Packing
TS78xxCZ C0	TO-220	50pcs / Tube
TS78xxCI C0	ITO-220	50pcs / Tube
TS78xxCM RN	TO-263	800pcs / 13" Reel

Note: Where **xx** denote voltage option

Absolute Maximum Rating (Ta = 25°C unless otherwise noted)

Parameter		Symbol	Limit	Unit
Input Voltage	V _{OUT} =5~18V	V _{IN}	35	V
	V _{OUT} =24V		40	
Output Current		I _{OUT}	Internal Limited	
Power Dissipation		P _D	Internal Limited	
Operating Junction Temperature		T _J	0~+125	°C
Storage Temperature Range		T _{STG}	-65~+150	°C
Thermal Resistance - Junction to Case	TO-220	R _{θJC}	5	°C/W
	ITO-220		5	
	TO-263 (D ² PAK)		3	
Thermal Resistance - Junction to Ambient	TO-220	R _{θJA}	50	°C/W
	ITO-220		60	
	TO-263 (D ² PAK)		62.5	

Note: Absolute maximum ratings are those values beyond which damage to the device may occur.

Functional operation under these condition is not implied.

TS7800 Series

3-Terminal Fixed Positive Voltage Regulator

TS7805 Electrical Characteristics

($V_{in}=10V$, $I_{out}=500mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Output voltage	V_{out}	$T_j=25^{\circ}C$	4.80	5	5.20	V
		$7.5V \leq V_{in} \leq 20V$, $10mA \leq I_{out} \leq 1A$, $P_D \leq 15W$	4.75	5	5.25	
Line Regulation	REG _{line}	$T_j=25^{\circ}C$				mV
		$7.5V \leq V_{in} \leq 25V$	--	3	100	
		$8V \leq V_{in} \leq 12V$	--	1	50	
Load Regulation	REG _{load}	$T_j=25^{\circ}C$				
		$10mA \leq I_{out} \leq 1A$	--	15	100	
		$250mA \leq I_{out} \leq 750mA$	--	5	50	
Quiescent Current	I_q	$I_{out}=0$, $T_j=25^{\circ}C$	--	4.2	8	mA
Quiescent Current Change	ΔI_q	$7.5V \leq V_{in} \leq 25V$	--	--	1.3	
		$10mA \leq I_{out} \leq 1A$	--	--	0.5	
Output Noise Voltage	V_n	$10Hz \leq f \leq 100KHz$, $T_j=25^{\circ}C$	--	40	--	μV
Ripple Rejection Ratio	RR	$f=120Hz$, $8V \leq V_{in} \leq 18V$	62	78	--	dB
Voltage Drop	V_{drop}	$I_{out}=1.0A$, $T_j=25^{\circ}C$	--	2	--	V
Output Resistance	R_{out}	$f=1KHz$	--	17	--	$m\Omega$
Output Short Circuit Current	I_{os}	$T_j=25^{\circ}C$	--	750	--	mA
Peak Output Current	$I_{o peak}$	$T_j=25^{\circ}C$	--	2.2	--	A
Temperature Coefficient of Output Voltage	$\Delta V_{out} / \Delta T_j$	$I_{out}=10mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$	--	-0.6	--	$mV/^{\circ}C$

TS7806 Electrical Characteristics

($V_{in}=11V$, $I_{out}=500mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Output Voltage	V_{out}	$T_j=25^{\circ}C$	5.75	6	6.25	V
		$8.5V \leq V_{in} \leq 21V$, $10mA \leq I_{out} \leq 1A$, $P_D \leq 15W$	5.7	6	6.3	
Line Regulation	REG _{line}	$T_j=25^{\circ}C$				mV
		$8.5V \leq V_{in} \leq 25V$	--	5	120	
		$9V \leq V_{in} \leq 13V$	--	1.5	60	
Load Regulation	REG _{load}	$T_j=25^{\circ}C$				
		$10mA \leq I_{out} \leq 1A$	--	14	120	
		$250mA \leq I_{out} \leq 750mA$	--	4	60	
Quiescent Current	I_q	$I_{out}=0$, $T_j=25^{\circ}C$	--	4.3	8	mA
Quiescent Current Change	ΔI_q	$8.5V \leq V_{in} \leq 25V$	--	--	1.3	
		$10mA \leq I_{out} \leq 1A$	--	--	0.5	
Output Noise Voltage	V_n	$10Hz \leq f \leq 100KHz$, $T_j=25^{\circ}C$	--	45	--	μV
Ripple Rejection Ratio	RR	$f=120Hz$, $9V \leq V_{in} \leq 19V$	59	75	--	dB
Voltage Drop	V_{drop}	$I_{out}=1.0A$, $T_j=25^{\circ}C$	--	2	--	V
Output Resistance	R_{out}	$f=1KHz$	--	19	--	$m\Omega$
Output Short Circuit Current	I_{os}	$T_j=25^{\circ}C$	--	550	--	mA
Peak Output Current	$I_{o peak}$	$T_j=25^{\circ}C$	--	2.2	--	A
Temperature Coefficient of Output Voltage	$\Delta V_{out} / \Delta T_j$	$I_{out}=10mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$	--	-0.7	--	$mV/^{\circ}C$

- Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible, and thermal effects must be taken into account separately.
- This specification applies only for DC power dissipation permitted by absolute maximum ratings.

TS7800 Series

3-Terminal Fixed Positive Voltage Regulator

TS7808 Electrical Characteristics

$V_{in}=14V$, $I_{out}=500mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

Parameter	Symbol	Test Condition		Min	Typ	Max	Unit
Output voltage	V_{out}	$T_j=25^{\circ}C$		7.69	8	8.32	V
		$10.5V \leq V_{in} \leq 23V$, $10mA \leq I_{out} \leq 1A$, $PD \leq 15W$		7.61	8	8.40	
Line Regulation	REG _{line}	$T_j=25^{\circ}C$	$10.5V \leq V_{in} \leq 25V$	--	6	160	mV
			$11V \leq V_{in} \leq 17V$	--	2	80	
Load Regulation	REG _{load}	$T_j=25^{\circ}C$	$10mA \leq I_{out} \leq 1A$	--	12	160	
			$250mA \leq I_{out} \leq 750mA$	--	4	80	
Quiescent Current	I_q	$I_{out}=0$, $T_j=25^{\circ}C$		--	4.3	8	mA
Quiescent Current Change	ΔI_q	$10.5V \leq V_{in} \leq 25V$		--	--	1	
		$10mA \leq I_{out} \leq 1A$		--	--	0.5	
Output Noise Voltage	V_n	$10Hz \leq f \leq 100KHz$, $T_j=25^{\circ}C$		--	52	--	μV
Ripple Rejection Ratio	RR	$f=120Hz$, $11V \leq V_{in} \leq 21V$		56	72	--	dB
Voltage Drop	V_{drop}	$I_{out}=1.0A$, $T_j=25^{\circ}C$		--	2	--	V
Output Resistance	R_{out}	$f=1KHz$		--	16	--	$m\Omega$
Output Short Circuit Current	I_{os}	$T_j=25^{\circ}C$		--	450	--	mA
Peak Output Current	$I_{o peak}$	$T_j=25^{\circ}C$		--	2.2	--	A
Temperature Coefficient of Output Voltage	$\Delta V_{out} / \Delta T_j$	$I_{out}=10mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$		--	-0.8	--	$mV / ^{\circ}C$

TS7809 Electrical Characteristics

($V_{in}=15V$, $I_{out}=500mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

Parameter	Symbol	Test Condition		Min	Typ	Max	Unit
Output Voltage	V_{out}	$T_j=25^{\circ}C$		8.65	9	9.36	V
		$11.5V \leq V_{in} \leq 23V$, $10mA \leq I_{out} \leq 1A$, $PD \leq 15W$		8.57	9	9.45	
Line Regulation	REG _{line}	$T_j=25^{\circ}C$	$11.5V \leq V_{in} \leq 26V$	--	6	180	mV
			$12V \leq V_{in} \leq 17V$	--	2	90	
Load Regulation	REG _{load}	$T_j=25^{\circ}C$	$10mA \leq I_{out} \leq 1A$	--	12	180	
			$250mA \leq I_{out} \leq 750mA$	--	4	90	
Quiescent Current	I_q	$I_{out}=0$, $T_j=25^{\circ}C$		--	4.3	8	mA
Quiescent Current Change	ΔI_q	$11.5V \leq V_{in} \leq 26V$		--	--	1	
		$10mA \leq I_{out} \leq 1A$		--	--	0.5	
Output Noise Voltage	V_n	$10Hz \leq f \leq 100KHz$, $T_j=25^{\circ}C$		--	52	--	μV
Ripple Rejection Ratio	RR	$f=120Hz$, $12V \leq V_{in} \leq 22V$		55	72	--	dB
Voltage Drop	V_{drop}	$I_{out}=1.0A$, $T_j=25^{\circ}C$		--	2	--	V
Output Resistance	R_{out}	$f=1KHz$		--	16	--	$m\Omega$
Output Short Circuit Current	I_{os}	$T_j=25^{\circ}C$		--	450	--	mA
Peak Output Current	$I_{o peak}$	$T_j=25^{\circ}C$		--	2.2	--	A
Temperature Coefficient of Output Voltage	$\Delta V_{out} / \Delta T_j$	$I_{out}=10mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$		--	-1	--	$mV / ^{\circ}C$

- Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible, and thermal effects must be taken into account separately.
- This specification applies only for DC power dissipation permitted by absolute maximum ratings.

TS7800 Series

3-Terminal Fixed Positive Voltage Regulator

TS7810 Electrical Characteristics

$V_{in}=16V$, $I_{out}=500mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

Parameter	Symbol	Test Condition		Min	Typ	Max	Unit
Output voltage	V_{out}	$T_j=25^{\circ}C$		9.6	10	10.4	V
		$12.5V \leq V_{in} \leq 25V$, $10mA \leq I_{out} \leq 1A$, $PD \leq 15W$		9.5	10	10.5	
Line Regulation	REG _{line}	$T_j=25^{\circ}C$	$12.5V \leq V_{in} \leq 28V$	--	7	200	mV
			$13V \leq V_{in} \leq 17V$	--	2	100	
Load Regulation	REG _{load}	$T_j=25^{\circ}C$	$10mA \leq I_{out} \leq 1A$	--	12	200	
			$250mA \leq I_{out} \leq 750mA$	--	4	100	
Quiescent Current	I_q	$I_{out}=0$, $T_j=25^{\circ}C$		--	4.3	8	mA
Quiescent Current Change	ΔI_q	$12.5V \leq V_{in} \leq 28V$		--	--	1	
		$10mA \leq I_{out} \leq 1A$		--	--	0.5	
Output Noise Voltage	V_n	$10Hz \leq f \leq 100KHz$, $T_j=25^{\circ}C$		--	70	--	μV
Ripple Rejection Ratio	RR	$f=120Hz$, $13V \leq V_{in} \leq 23V$		55	71	--	dB
Voltage Drop	V_{drop}	$I_{out}=1.0A$, $T_j=25^{\circ}C$		--	2	--	V
Output Resistance	R_{out}	$f=1KHz$		--	18	--	$m\Omega$
Output Short Circuit Current	I_{os}	$T_j=25^{\circ}C$		--	400	--	mA
Peak Output Current	$I_{o peak}$	$T_j=25^{\circ}C$		--	2.2	--	A
Temperature Coefficient of Output Voltage	$\Delta V_{out} / \Delta T_j$	$I_{out}=10mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$		--	-1	--	mV/ $^{\circ}C$

TS7812 Electrical Characteristics

($V_{in}=19V$, $I_{out}=500mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

Parameter	Symbol	Test Condition		Min	Typ	Max	Unit
Output Voltage	V_{out}	$T_j=25^{\circ}C$		11.53	12	12.48	V
		$14.5V \leq V_{in} \leq 27V$, $10mA \leq I_{out} \leq 1A$, $PD \leq 15W$		11.42	12	12.60	
Line Regulation	REG _{line}	$T_j=25^{\circ}C$	$14.5V \leq V_{in} \leq 30V$	--	10	240	mV
			$15V \leq V_{in} \leq 19V$	--	3	120	
Load Regulation	REG _{load}	$T_j=25^{\circ}C$	$10mA \leq I_{out} \leq 1A$	--	12	240	
			$250mA \leq I_{out} \leq 750mA$	--	4	120	
Quiescent Current	I_q	$T_j=25^{\circ}C$, $I_{out}=0$		--	4.3	8	mA
Quiescent Current Change	ΔI_q	$14.5V \leq V_{in} \leq 30V$		--	--	1	
		$10mA \leq I_{out} \leq 1A$		--	--	0.5	
Output Noise Voltage	V_n	$10Hz \leq f \leq 100KHz$, $T_j=25^{\circ}C$		--	75	--	μV
Ripple Rejection Ratio	RR	$f=120Hz$, $15V \leq V_{in} \leq 25V$		55	71	--	dB
Voltage Drop	V_{drop}	$I_{out}=1.0A$, $T_j=25^{\circ}C$		--	2	--	V
Output Resistance	R_{out}	$f=1KHz$		--	18	--	$m\Omega$
Output Short Circuit Current	I_{os}	$T_j=25^{\circ}C$		--	350	--	mA
Peak Output Current	$I_{o peak}$	$T_j=25^{\circ}C$		--	2.2	--	A
Temperature Coefficient of Output Voltage	$\Delta V_{out} / \Delta T_j$	$I_{out}=10mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$		--	-1	--	mV/ $^{\circ}C$

- Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible, and thermal effects must be taken into account separately.
- This specification applies only for DC power dissipation permitted by absolute maximum ratings.

TS7800 Series

3-Terminal Fixed Positive Voltage Regulator

TS7815 Electrical Characteristics

$V_{in}=23V$, $I_{out}=500mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Output voltage	V_{out}	$T_j=25^{\circ}C$	14.42	15	15.60	V
		$17.5V \leq V_{in} \leq 30V$, $10mA \leq I_{out} \leq 1A$, $PD \leq 15W$	14.28	15	15.75	
Line Regulation	REG _{line}	$T_j=25^{\circ}C$	$17.5V \leq V_{in} \leq 30V$	--	12	mV
			$18V \leq V_{in} \leq 22V$	--	3	
Load Regulation	REG _{load}	$T_j=25^{\circ}C$	$10mA \leq I_{out} \leq 1A$	--	12	
			$250mA \leq I_{out} \leq 750mA$	--	4	
Quiescent Current	I_q	$T_j=25^{\circ}C$, $I_{out}=0$	--	4.3	8	mA
Quiescent Current Change	ΔI_q	$17.5V \leq V_{in} \leq 30V$	--	--	1	
		$10mA \leq I_{out} \leq 1A$	--	--	0.5	
Output Noise Voltage	V_n	$10Hz \leq f \leq 100KHz$, $T_j=25^{\circ}C$	--	90	--	μV
Ripple Rejection Ratio	RR	$f=120Hz$, $18V \leq V_{in} \leq 28V$	54	70	--	dB
Voltage Drop	V_{drop}	$I_{out}=1.0A$, $T_j=25^{\circ}C$	--	2	--	V
Output Resistance	R_{out}	$f=1KHz$	--	19	--	$m\Omega$
Output Short Circuit Current	I_{os}	$T_j=25^{\circ}C$	--	230	--	mA
Peak Output Current	$I_{o peak}$	$T_j=25^{\circ}C$	--	2.2	--	A
Temperature Coefficient of Output Voltage	$\Delta V_{out} / \Delta T_j$	$I_{out}=10mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$	--	-1	--	mV/ $^{\circ}C$

TS7818 Electrical Characteristics

($V_{in}=24V$, $I_{out}=500mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Output Voltage	V_{out}	$T_j=25^{\circ}C$	17.30	18	18.72	V
		$21V \leq V_{in} \leq 33V$, $10mA \leq I_{out} \leq 1A$, $PD \leq 15W$	17.14	18	18.90	
Line Regulation	REG _{line}	$T_j=25^{\circ}C$	$21V \leq V_{in} \leq 33V$	--	15	mV
			$22V \leq V_{in} \leq 26V$	--	5	
Load Regulation	REG _{load}	$T_j=25^{\circ}C$	$10mA \leq I_{out} \leq 1A$	--	12	
			$250mA \leq I_{out} \leq 750mA$	--	4	
Quiescent Current	I_q	$T_j=25^{\circ}C$, $I_{out}=0$	--	4.5	8	mA
Quiescent Current Change	ΔI_q	$21V \leq V_{in} \leq 33V$	--	--	1	
		$10mA \leq I_{out} \leq 1A$	--	--	0.5	
Output Noise Voltage	V_n	$10Hz \leq f \leq 100KHz$, $T_j=25^{\circ}C$	--	110	--	μV
Ripple Rejection Ratio	RR	$f=120Hz$, $21V \leq V_{in} \leq 31V$	54	70	--	dB
Voltage Drop	V_{drop}	$I_{out}=1.0A$, $T_j=25^{\circ}C$	--	2	--	V
Output Resistance	R_{out}	$f=1KHz$	--	22	--	$m\Omega$
Output Short Circuit Current	I_{os}	$T_j=25^{\circ}C$	--	200	--	mA
Peak Output Current	$I_{o peak}$	$T_j=25^{\circ}C$	--	2.2	--	A
Temperature Coefficient of Output Voltage	$\Delta V_{out} / \Delta T_j$	$I_{out}=10mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$	--	-1	--	mV/ $^{\circ}C$

- Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible, and thermal effects must be taken into account separately.
- This specification applies only for DC power dissipation permitted by absolute maximum ratings.

TS7800 Series

3-Terminal Fixed Positive Voltage Regulator

TS7824 Electrical Characteristics

$V_{in}=33V$, $I_{out}=500mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$, $C_{in}=0.33\mu F$, $C_{out}=0.1\mu F$; unless otherwise specified.)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Output voltage	V_{out}	$T_j=25^{\circ}C$	23.07	24	24.96	V
		$27V \leq V_{in} \leq 38V$, $10mA \leq I_{out} \leq 1A$, $PD \leq 15W$	22.85	24	25.20	
Line Regulation	REG _{line}	$T_j=25^{\circ}C$	$27V \leq V_{in} \leq 38V$	--	18	mV
			$28V \leq V_{in} \leq 32V$	--	6	
Load Regulation	REG _{load}	$T_j=25^{\circ}C$	$10mA \leq I_{out} \leq 1A$	--	12	
			$250mA \leq I_{out} \leq 750mA$	--	4	
Quiescent Current	I_q	$I_{out}=0$, $T_j=25^{\circ}C$	--	4.6	8	mA
Quiescent Current Change	ΔI_q	$27V \leq V_{in} \leq 38V$	--	--	1	
		$10mA \leq I_{out} \leq 1A$	--	--	0.5	
Output Noise Voltage	V_n	$10Hz \leq f \leq 100KHz$, $T_j=25^{\circ}C$	--	170	--	μV
Ripple Rejection Ratio	RR	$f=120Hz$, $27V \leq V_{in} \leq 37V$	54	70	--	dB
Voltage Drop	V_{drop}	$I_{out}=1.0A$, $T_j=25^{\circ}C$	--	2	--	V
Output Resistance	R_{out}	$f=1KHz$	--	28	--	$m\Omega$
Output Short Circuit Current	I_{os}	$T_j=25^{\circ}C$	--	150	--	mA
Peak Output Current	$I_{o peak}$	$T_j=25^{\circ}C$	--	2.2	--	A
Temperature Coefficient of Output Voltage	$\Delta V_{out} / \Delta T_j$	$I_{out}=10mA$, $0^{\circ}C \leq T_j \leq 125^{\circ}C$	--	-1.5	--	$mV / ^{\circ}C$

- Pulse testing techniques are used to maintain the junction temperature as close to the ambient temperature as possible, and thermal effects must be taken into account separately.
- This specification applies only for DC power dissipation permitted by absolute maximum ratings.

Electrical Characteristics Curve

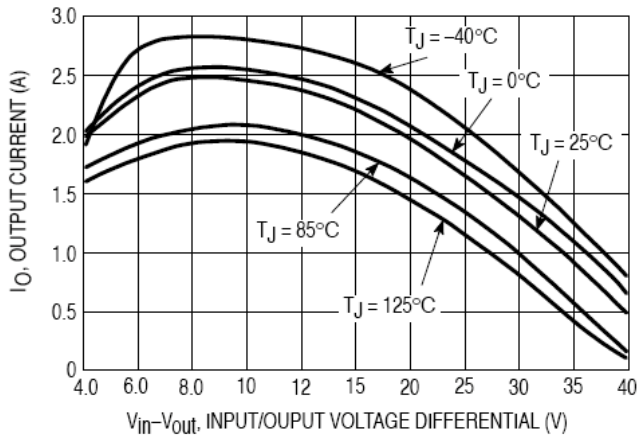


Figure 1. Peak Output Current as a Function of Input-Output Differential Voltage

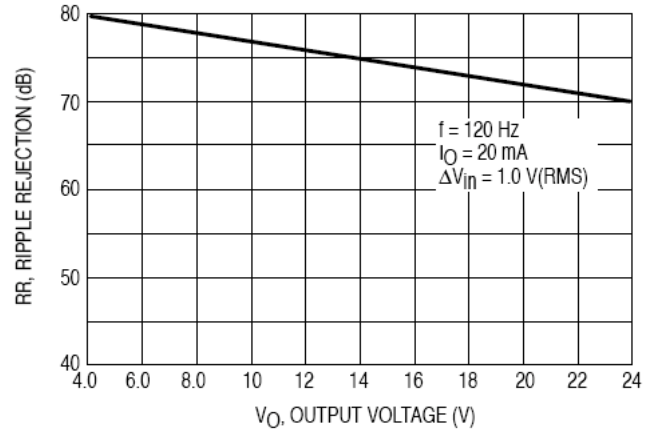


Figure 2. Ripple Rejection as a Function of Output Voltage

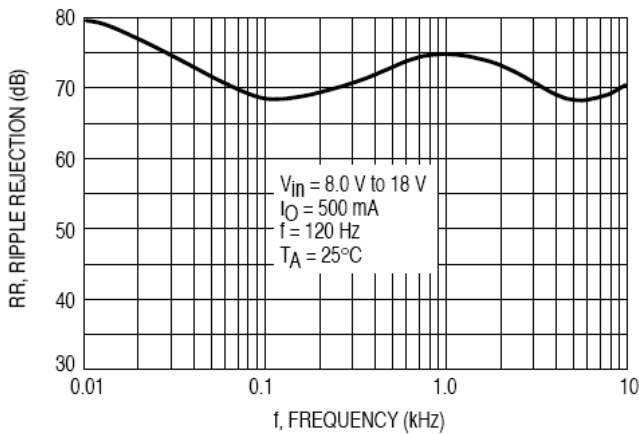


Figure 3. Ripple Rejection as a Function of Frequency

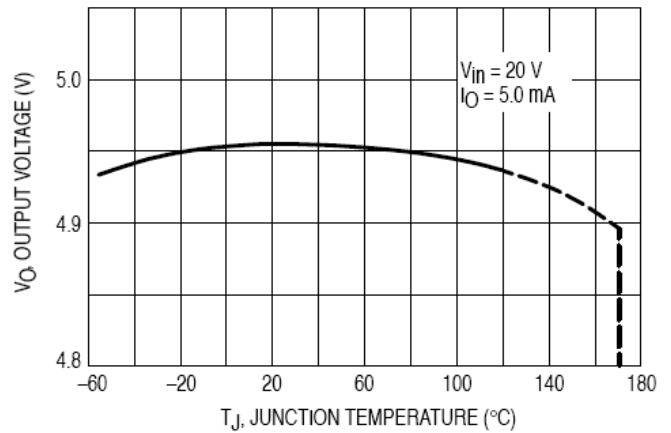


Figure 4. Output Voltage as a Function of Junction Temperature

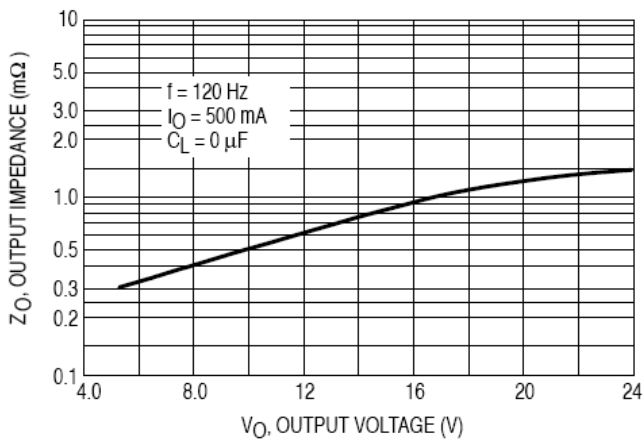


Figure 5. Output Impedance as a Function of Output Voltage

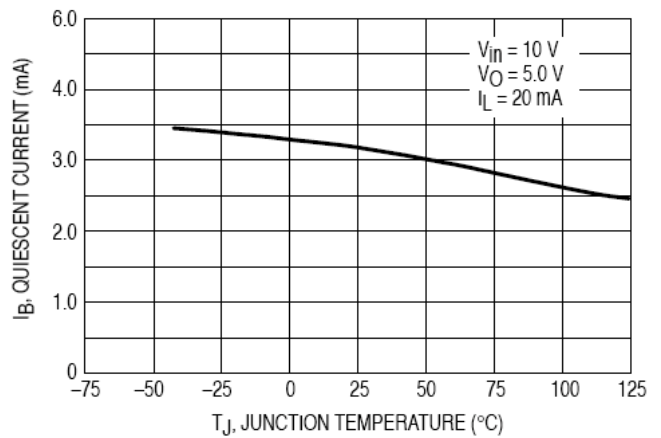


Figure 6. Quiescent Current as a Function of Temperature

Application Information

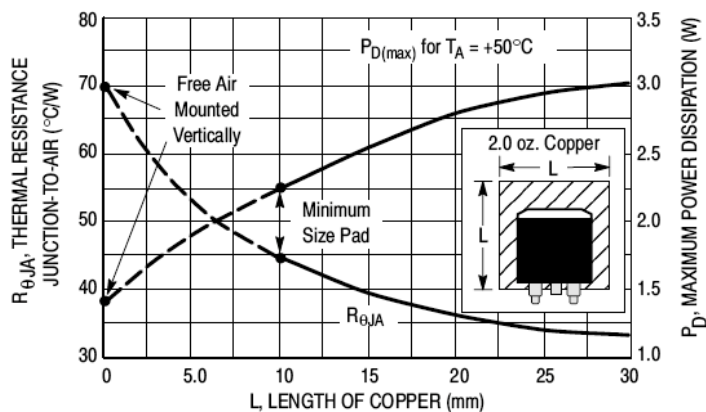
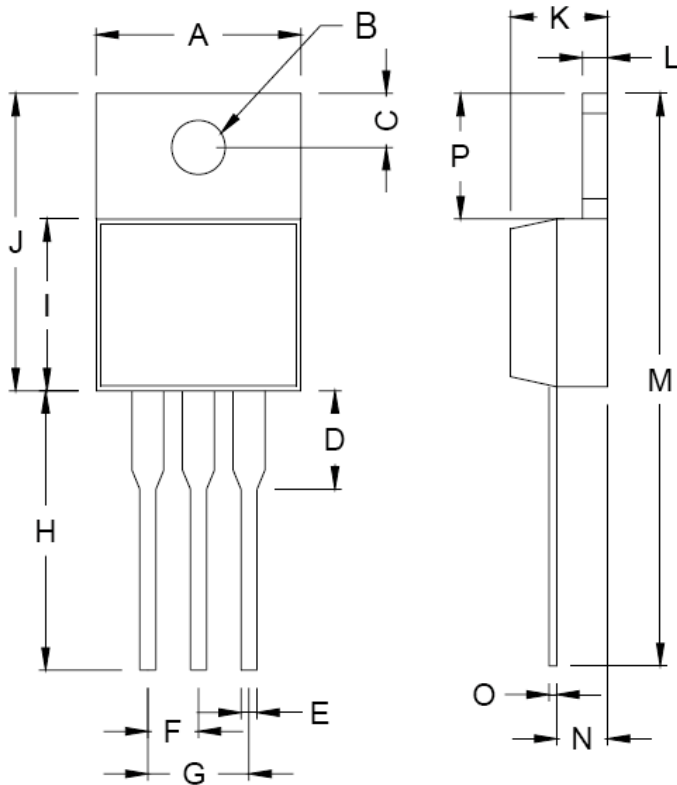


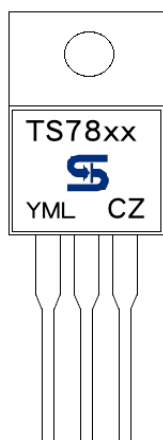
Figure 7. D²PAK Thermal Resistance and Maximum Power Dissipation vs. P.C.B Copper Length

TO-220 Mechanical Drawing



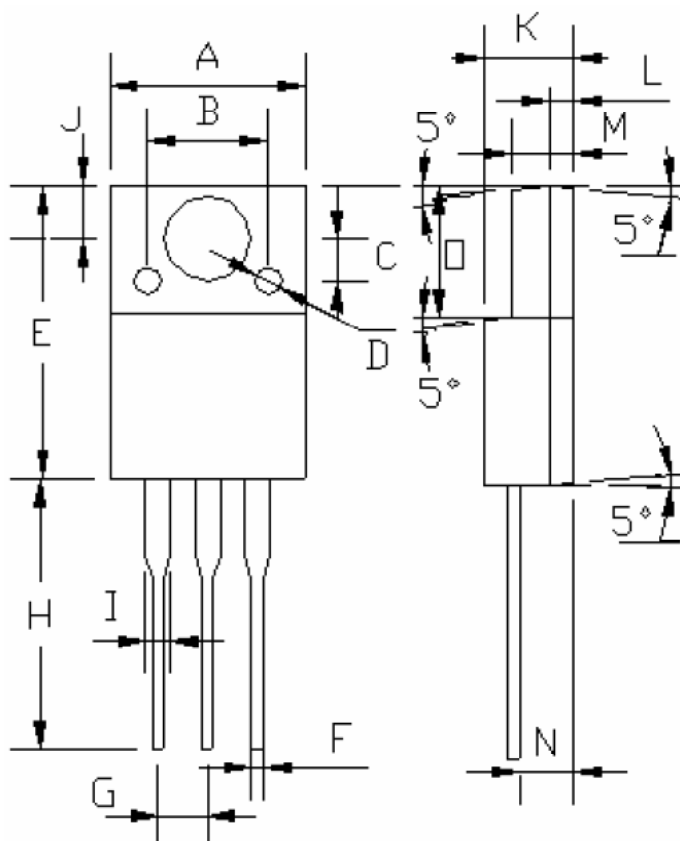
DIM	TO-220 DIMENSION			
	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.31	10.50	0.367	0.413
B	3.74	3.91	0.147	0.154
C	2.36	3.24	0.093	0.128
D	2.22	3.22	0.087	0.127
E	0.78	0.98	0.031	0.039
F	--	2.65	--	0.104
G	--	5.30	--	0.209
H	12.32	13.88	0.485	0.546
I	8.74	9.26	0.344	0.365
J	15.07	16.47	0.593	0.648
K	4.35	4.65	0.171	0.183
L	1.16	1.40	0.046	0.055
M	28.37	30.35	1.117	1.195
N	1.78	2.67	0.070	0.105
O	0.255	0.610	0.010	0.024
P	5.75	7.65	0.226	0.301

Marking Diagram



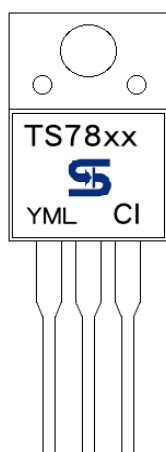
- XX** = Output Voltage
(05=5V, 06=6V, 08=8V, 09=9V, 10=10V, 12=12V, 15=15V, 18=18V, 24=24V)
- Y** = Year Code
- M** = Month Code
(A=Jan, B=Feb, C=Mar, D=Apl, E=May, F=Jun, G=Jul, H=Aug, I=Sep, J=Oct, K=Nov, L=Dec)
- L** = Lot Code
- CZ** = Package Code for TO-220

ITO-220 Mechanical Drawing



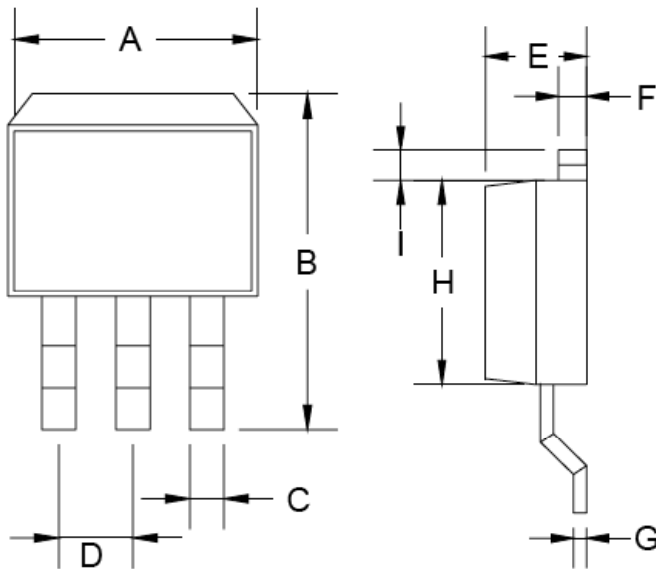
ITO-220 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.96	10.36	0.392	0.407
B	6.20 (typ.)		0.244 (typ.)	
C	2.20 (typ.)		0.087 (typ.)	
D	1.40 (typ.)		0.055 (typ.)	
E	15.07	16.07	0.593	0.632
F	0.80 (typ.)		0.031 (typ.)	
G	2.44	2.64	0.096	0.104
H	13.08	13.48	0.514	0.530
I	1.47 (max.)		0.057 (max.)	
J	3.20	3.40	0.125	0.133
K	4.60	4.80	0.181	0.188
L	1.15 (typ.)		0.045 (typ.)	
M	2.44	2.64	0.096	0.104
N	2.60	2.80	0.102	0.110
O	6.55	6.65	0.258	0.262

Marking Diagram



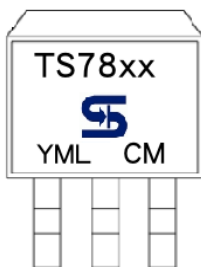
- XX** = Output Voltage
(05=5V, 06=6V, 08=8V, 09=9V, 10=10V, 12=12V, 15=15V, 18=18V, 24=24V)
- Y** = Year Code
- M** = Month Code
(A=Jan, B=Feb, C=Mar, D=Apl, E=May, F=Jun, G=Jul, H=Aug, I=Sep, J=Oct, K=Nov, L=Dec)
- L** = Lot Code
- CI** = Package Code for ITO-220

TO-263 Mechanical Drawing



DIM	TO-263 DIMENSION			
	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.000	10.500	0.394	0.413
B	14.605	15.875	0.575	0.625
C	0.508	0.991	0.020	0.039
D	2.420	2.660	0.095	0.105
E	4.064	4.830	0.160	0.190
F	1.118	1.400	0.045	0.055
G	0.450	0.730	0.018	0.029
H	8.280	8.800	0.325	0.346
I	1.140	1.400	0.044	0.055
J	1.480	1.520	0.058	0.060

Marking Diagram



- XX** = Output Voltage
(05=5V, 06=6V, 08=8V, 09=9V, 10=10V, 12=12V, 15=15V, 18=18V, 24=24V)
- Y** = Year Code
- M** = Month Code
(A=Jan, B=Feb, C=Mar, D=Apl, E=May, F=Jun, G=Jul, H=Aug, I=Sep, J=Oct, K=Nov, L=Dec)
- L** = Lot Code
- CM** = Package Code for TO-263

TS7800 Series

3-Terminal Fixed Positive Voltage Regulator

Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.