

**ECG762, ECG763
ECG764, ECG765**
MONOLITHIC VOLTAGE
REGULATORS

T-58-11-13

**ECG[®]
Semiconductors**

ECG762 - Discontinued

This series of voltage regulators is designed to deliver load currents to 200 mA dc. Output current capability can be increased to several amperes through the use of external pass transistors. These devices are industrial quality regulators intended for consumer applications requiring high volume and low cost.

- Excellent Line and Load Regulation
- Current-Limit Feature Available
- Economical Six-Lead Package

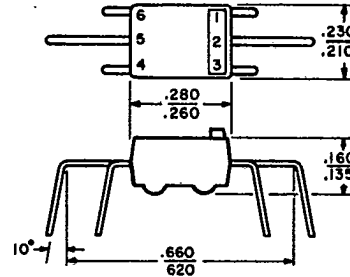
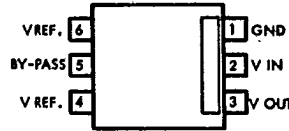


Figure 1 - Typical Current Connection and Test Circuit

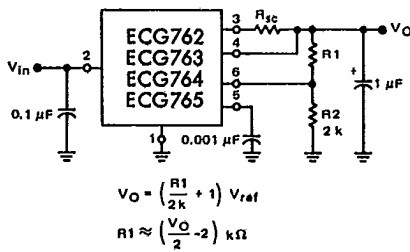


Figure 3 - Circuit Schematic

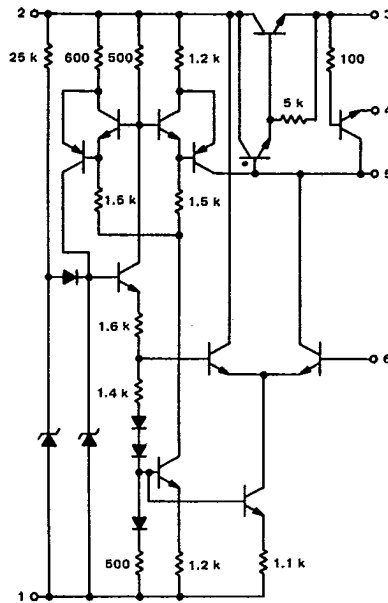
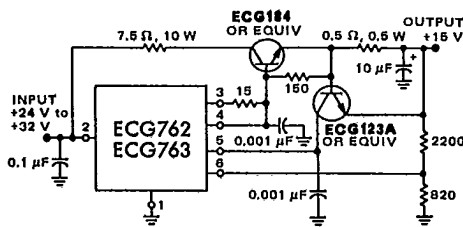


Figure 2 - 15-Volt, 1.0-Ampere Regulator (with short-circuit protection)



209

ECG762, ECG763, ECG764, ECG765

Maximum Ratings ($T_A = +25^\circ\text{C}$ unless otherwise noted).

Rating	Symbol	Value	Unit
Input Voltage ECG762, ECG763 ECG764, ECG765	V_{in}	38 22	Vdc
Maximum Load Current	I_L	200	mAdc
Power Dissipation (Package Limitation) Derate above $T_A = +25^\circ\text{C}$	P_D	1.0 10	Watt mW/ $^\circ\text{C}$
Operating Temperature Range (Ambient)	T_A	-10 to +75	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-65 to +150	$^\circ\text{C}$

Electrical Characteristics ($V_{in} = +12\text{ Vdc}$, $V_O = +5.0\text{ Vdc}$, $I_L = 1.0\text{ mAdc}$, $R_{sc} = 0$, $T_A = +25^\circ\text{C}$ unless otherwise noted.)

(See Figure 1)

Characteristic	Symbol	ECG762			ECG763			ECG764			ECG765			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
Input Voltage Range	V_{in}	9.0	-	38	9.0	-	38	9.0	-	22	9.0	-	22	Vdc
Output Voltage Range	V_O	V_{Ref}	-	35	V_{Ref}	-	35	V_{Ref}	-	19	V_{Ref}	-	19	Vdc
Input-Output Voltage Differential	$V_{in}-V_O$	3.0	-	-	3.0	-	-	3.0	-	-	3.0	-	-	Vdc
Reference Voltage ($R_1 = 0$)	V_{ref}	3.75	4.1	4.35	3.6	4.1	4.6	3.75	4.1	4.35	3.6	4.1	4.6	Vdc
Standby Current Drain ($I_L = 0$, $V_{in} = 20\text{ V}$)	I_{IB}	-	3.7	6.0	-	3.7	7.0	-	3.7	6.0	-	3.7	7.0	mAdc
Average Temperature Coefficient of Output Voltage ($T_A = -10$ to $+75^\circ\text{C}$)	TCV_O	-	0.003	0.03	-	0.003	0.03	-	0.003	0.03	-	0.003	0.03	%/ $^\circ\text{C}$
Line Reg. ($V_O = 7.5\text{ V}$) ($12\text{ V} < V_{in} < 18$) ($12\text{ V} < V_{in} < 30$)	Reg_{in}	-	-	-	-	-	-	0.01	0.03	-	-	-	0.06	%/ V_{in}
Load Regulation ($1.0\text{ mA} < I_L < 50\text{ mA}$)	Reg_L	-	0.03	0.2	-	-	0.4	-	0.03	0.2	-	-	0.4	%/ V_O
Short-Circuit Current Limit ($R_{sc} = 100\text{ ohms}$, $V_O = 0$)	I_{sc}	-	6.5	-	-	6.5	-	-	6.5	-	-	6.5	-	mAdc

Symbols conform to JEDEC Engineering Bulletin No. 1 when applicable.

LINE REGULATION
 $\%V_{in} = \frac{\Delta V_O}{\Delta V_{in}} \times 100$

LOAD REGULATION
 $\% = \frac{\Delta V_O}{V_O} \times 100$

SHORT-CIRCUIT CURRENT
 $I_{sc} = \frac{V_{BE}}{R_{sc}} \approx \frac{0.65}{100\text{ ohms}}$ (at $T_J = +25^\circ\text{C}$)

Typical Characteristics

($V_{in} = 12\text{ Vdc}$, $V_O = 5.0\text{ Vdc}$, $I_L = 1.0\text{ mAdc}$, $R_{sc} = 0$, $T_A = +25^\circ\text{C}$ unless otherwise noted.)

Figure 4 - Maximum Load Current versus Input-Output Voltage

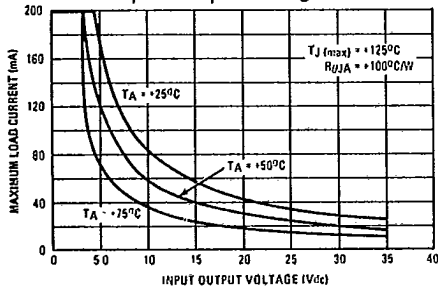
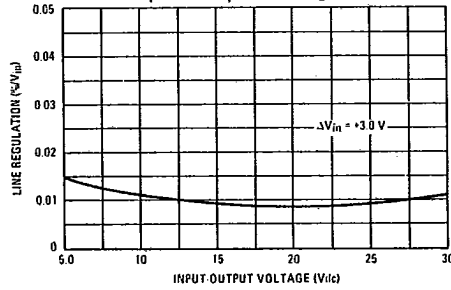


Figure 5 - Line Regulation versus Input-Output Voltage



Typical Characteristics (continued)

Figure 6 - Load Regulation versus Input-Output Voltage

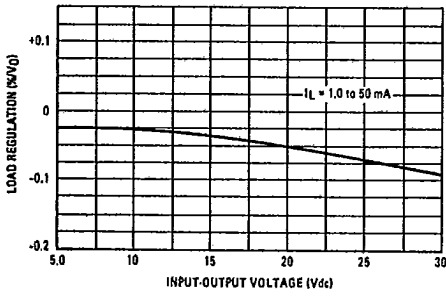


Figure 7 - Load Regulation with Current Limiting

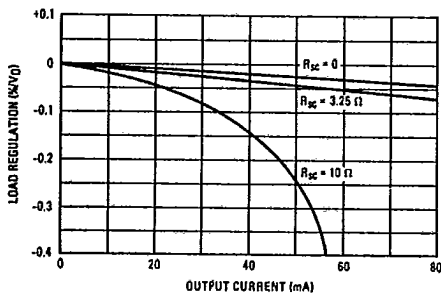
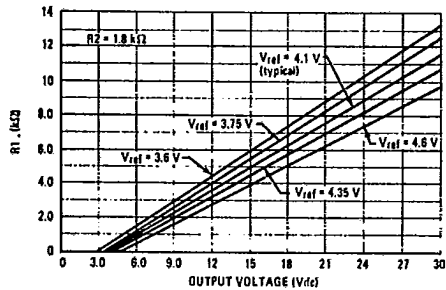
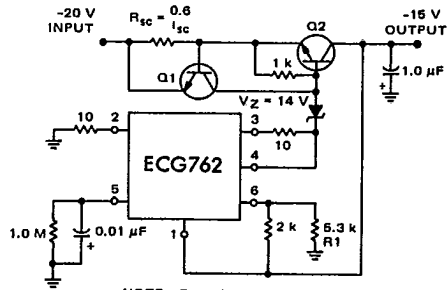


Figure 8 - Output Voltage versus R1



Typical Applications

Figure 9 - ECG762 - 15 Volt Regulator with Current Limit



NOTE: For other output voltages:
 $(-9 \text{ V} < V_O < -35 \text{ V})$
 $R_1 \text{ (k}\Omega\text{)} = \frac{2 |V_O|}{V_{ref}} - 2$
 $V_z = |V_{in}| - \frac{|V_O|}{2} + 1$

T-58-11-13

Figure 10 - 15-Volt, 2.0-Ampere Regulator (with current foldback)

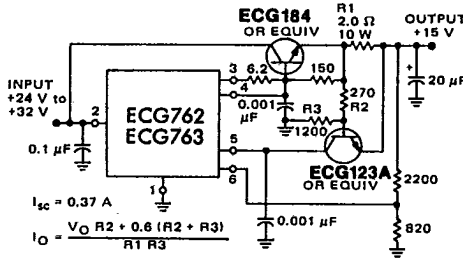
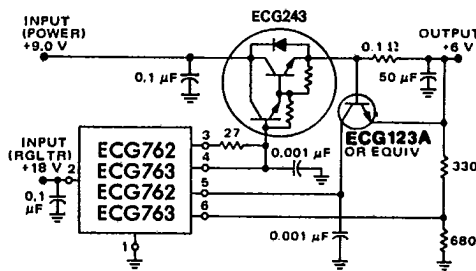


Figure 11 - 6.0-Volt, 5.0-Ampere High Efficiency Regulator



Typical Applications (continued)

T-58-11-13

Figure 12 - Current Bypass (Load current range, 400-to-500 mA)

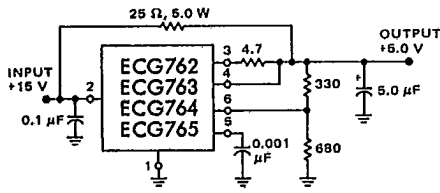


Figure 14 - 5.0-Volt, 5.0-Ampere Regulator with Remote Sensing, PNP Current Boost

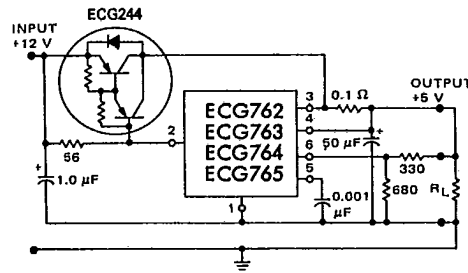
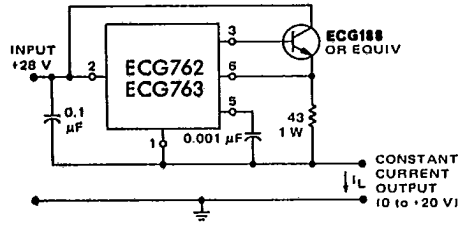


Figure 13 - 100 mA Constant Current Source



Pin 4 not connected

Figure 15 - Voltage Boosted 40-Volt, 100 mA Regulator (with short-circuit current limiting)

