

**SCD7800,
SCD7800A****1.0 A Positive Voltage
Regulators**

These 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 heatsinking they can deliver output currents in excess of 1.0 A. Although designed primarily as a fixed voltage regulator, these devices can be used with external components to obtain adjustable voltages and currents.

Features

- Output Current in Excess of 1.0 A
- No External Components Required
- Internal Thermal Overload Protection
- Internal Short Circuit Current Limiting
- Output Transistor Safe-Area Compensation
- Output Voltage Offered in 2% and 4% Tolerance
- Pb-Free Packages are Available

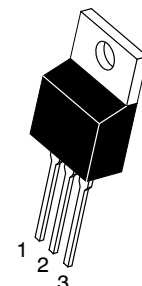
MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$, unless otherwise noted)

Rating	Symbol	Value	Unit
Input Voltage (5.0 – 18 V) (24 V)	V_I	35 40	Vdc
Power Dissipation	P_D	Internally Limited	W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	65	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	5.0	$^\circ\text{C/W}$
Storage Junction Temperature Range	T_{stg}	-65 to +150	$^\circ\text{C}$
Operating Junction Temperature	T_J	+150	$^\circ\text{C}$

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

*This device series contains ESD protection and exceeds the following tests:

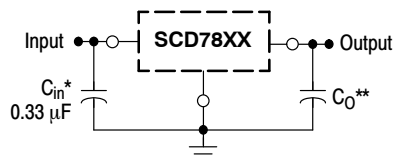
Human Body Model 2000 V per MIL_STD_883, Method 3015.
Machine Model Method 200 V.



**TO-220-3
T SUFFIX
CASE 221AB**

Heatsink surface
connected to Pin 2.

Pin 1. Input
Pin 2. Ground
Pin 3. Output

STANDARD APPLICATION

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

XX, These two digits of the type number indicate nominal voltage.

* C_{in} is required if regulator is located an appreciable distance from power supply filter.

** C_O is not needed for stability; however, it does improve transient response. Values of less than 0.1 μF could cause instability.

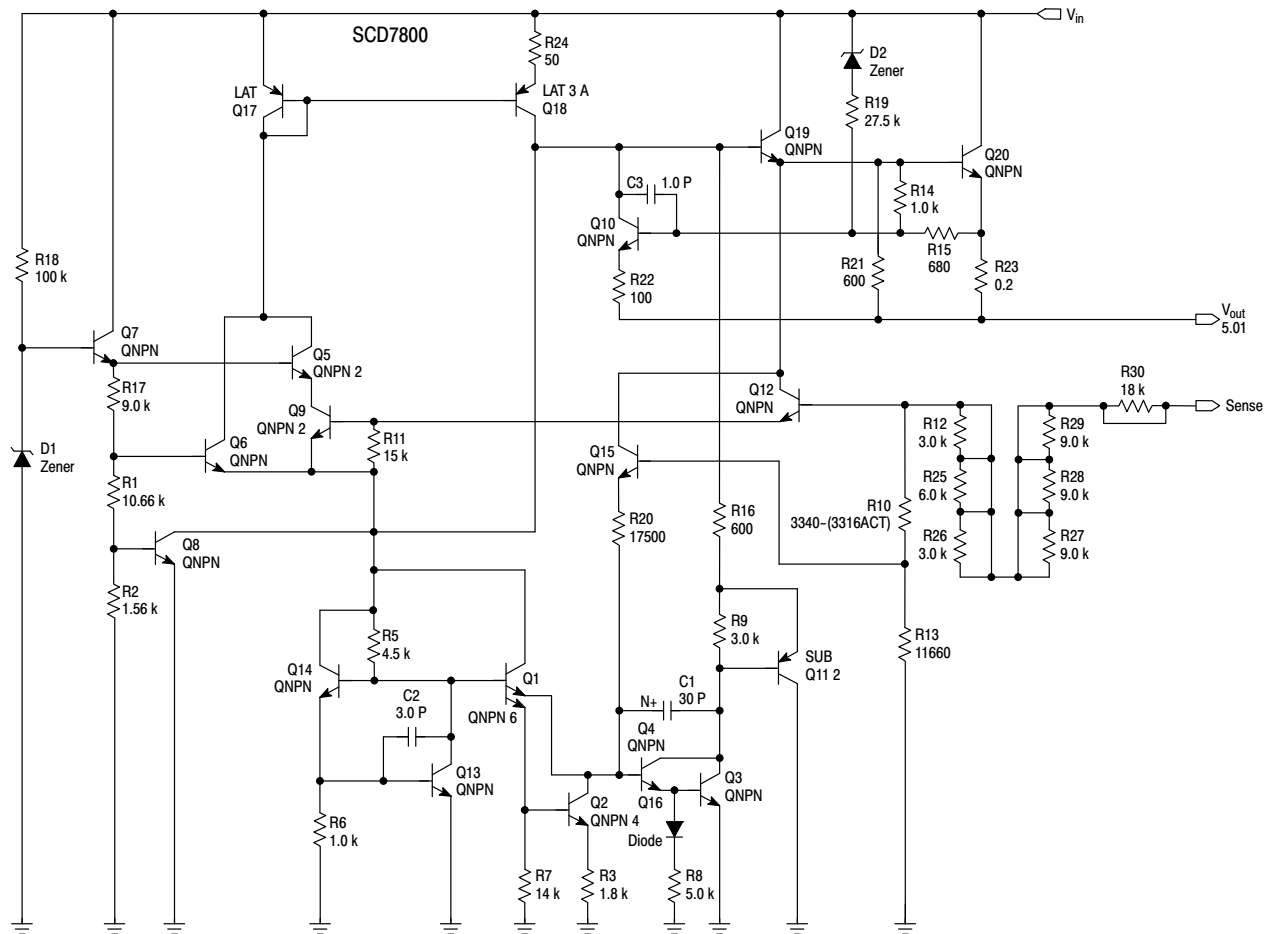
ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 18 of this data sheet.

DEVICE MARKING INFORMATION

See general marking information in the device marking section on page 19 of this data sheet.

SCD7800, SCD7800A



This device contains 22 active transistors.

Figure 1. Representative Schematic Diagram

SCD7800, SCD7800A

ELECTRICAL CHARACTERISTICS ($V_{in} = 10\text{ V}$, $I_O = 500\text{ mA}$, $T_J = T_{low}$ to T_{high} (Note 1), unless otherwise noted)

Characteristic	Symbol	SCD7805B			SCD7805C			Unit
		Min	Typ	Max	Min	Typ	Max	
Output Voltage ($T_J = 25^\circ\text{C}$)	V_O	4.8	5.0	5.2	4.8	5.0	5.2	Vdc
Output Voltage ($5.0\text{ mA} \leq I_O \leq 1.0\text{ A}$, $P_D \leq 15\text{ W}$) $7.0\text{ Vdc} \leq V_{in} \leq 20\text{ Vdc}$ $8.0\text{ Vdc} \leq V_{in} \leq 20\text{ Vdc}$	V_O	– 4.75	– 5.0	– 5.25	4.75 –	5.0 –	5.25 –	Vdc
Line Regulation (Note 4) $7.5\text{ Vdc} \leq V_{in} \leq 20\text{ Vdc}$, 1.0 A $8.0\text{ Vdc} \leq V_{in} \leq 12\text{ Vdc}$	Reg_{line}	– –	5.0 1.3	100 50	– –	0.5 0.8	20 10	mV
Load Regulation (Note 4) $5.0\text{ mA} \leq I_O \leq 1.0\text{ A}$ $5.0\text{ mA} \leq I_O \leq 1.5\text{ A}$ ($T_A = 25^\circ\text{C}$)	Reg_{load}	– –	1.3 0.15	100 50	– –	1.3 1.3	25 25	mV
Quiescent Current	I_B	–	3.2	8.0	–	3.2	6.5	mA
Quiescent Current Change $7.0\text{ Vdc} \leq V_{in} \leq 25\text{ Vdc}$ $5.0\text{ mA} \leq I_O \leq 1.0\text{ A}$ ($T_A = 25^\circ\text{C}$)	ΔI_B	– –	– –	– 0.5	– –	0.3 0.08	1.0 0.8	mA
Ripple Rejection $8.0\text{ Vdc} \leq V_{in} \leq 18\text{ Vdc}$, $f = 120\text{ Hz}$	RR	–	68	–	62	83	–	dB
Dropout Voltage ($I_O = 1.0\text{ A}$, $T_J = 25^\circ\text{C}$)	$V_I - V_O$	–	2.0	–	–	2.0	–	Vdc
Output Noise Voltage ($T_A = 25^\circ\text{C}$) $10\text{ Hz} \leq f \leq 100\text{ kHz}$	V_n	–	10	–	–	10	–	$\mu\text{V}/V_O$
Output Resistance $f = 1.0\text{ kHz}$	r_O	–	0.9	–	–	0.9	–	$\text{m}\Omega$
Short Circuit Current Limit ($T_A = 25^\circ\text{C}$) $V_{in} = 35\text{ Vdc}$	I_{SC}	–	0.2	–	–	0.6	–	A
Peak Output Current ($T_J = 25^\circ\text{C}$)	I_{max}	–	2.2	–	–	2.2	–	A
Average Temperature Coefficient of Output Voltage	TCV_O	–	–0.3	–	–	–0.3	–	$\text{mV}/^\circ\text{C}$

1. $T_{low} = 0^\circ\text{C}$ for SCD78XXAC, C, $T_{high} = +125^\circ\text{C}$ for SCD78XXAC
= -40°C for SCD78XXB, SCD78XXAB

2. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.

SCD7800, SCD7800A

ELECTRICAL CHARACTERISTICS ($V_{in} = 10\text{ V}$, $I_O = 1.0\text{ A}$, $T_J = T_{low}$ to T_{high} (Note 3), unless otherwise noted)

Characteristic	Symbol	SCD7805AB/SCD7805AC			Unit
		Min	Typ	Max	
Output Voltage ($T_J = 25^\circ\text{C}$)	V_O	4.9	5.0	5.1	Vdc
Output Voltage ($5.0\text{ mA} \leq I_O \leq 1.0\text{ A}$, $P_D \leq 15\text{ W}$) $7.5\text{ Vdc} \leq V_{in} \leq 20\text{ Vdc}$	V_O	4.8	5.0	5.2	Vdc
Line Regulation (Note 4) $7.5\text{ Vdc} \leq V_{in} \leq 25\text{ Vdc}$, $I_O = 500\text{ mA}$ $8.0\text{ Vdc} \leq V_{in} \leq 12\text{ Vdc}$, $I_O = 1.0\text{ A}$ $8.0\text{ Vdc} \leq V_{in} \leq 12\text{ Vdc}$, $I_O = 1.0\text{ A}$, $T_J = 25^\circ\text{C}$ $7.3\text{ Vdc} \leq V_{in} \leq 20\text{ Vdc}$, $I_O = 1.0\text{ A}$, $T_J = 25^\circ\text{C}$	Reg_{line}	–	0.5 0.8 1.3 4.5	10 12 4.0 10	mV
Load Regulation (Note 4) $5.0\text{ mA} \leq I_O \leq 1.5\text{ A}$, $T_J = 25^\circ\text{C}$ $5.0\text{ mA} \leq I_O \leq 1.0\text{ A}$ $250\text{ mA} \leq I_O \leq 750\text{ mA}$	Reg_{load}	–	1.3 0.8 0.53	25 25 15	mV
Quiescent Current	I_B	–	3.2	6.0	mA
Quiescent Current Change $8.0\text{ Vdc} \leq V_{in} \leq 25\text{ Vdc}$, $I_O = 500\text{ mA}$ $7.5\text{ Vdc} \leq V_{in} \leq 20\text{ Vdc}$, $T_J = 25^\circ\text{C}$ $5.0\text{ mA} \leq I_O \leq 1.0\text{ A}$	ΔI_B	–	0.3 – 0.08	0.8 0.8 0.5	mA
Ripple Rejection $8.0\text{ Vdc} \leq V_{in} \leq 18\text{ Vdc}$, $f = 120\text{ Hz}$, $I_O = 500\text{ mA}$	RR	68	83	–	dB
Dropout Voltage ($I_O = 1.0\text{ A}$, $T_J = 25^\circ\text{C}$)	$V_I - V_O$	–	2.0	–	Vdc
Output Noise Voltage ($T_A = 25^\circ\text{C}$) $10\text{ Hz} \leq f \leq 100\text{ kHz}$	V_n	–	10	–	$\mu\text{V}/V_O$
Output Resistance ($f = 1.0\text{ kHz}$)	r_O	–	0.9	–	$\text{m}\Omega$
Short Circuit Current Limit ($T_A = 25^\circ\text{C}$) $V_{in} = 35\text{ Vdc}$	I_{SC}	–	0.2	–	A
Peak Output Current ($T_J = 25^\circ\text{C}$)	I_{max}	–	2.2	–	A
Average Temperature Coefficient of Output Voltage	TCV_O	–	–0.3	–	$\text{mV}/^\circ\text{C}$

3. $T_{low} = 0^\circ\text{C}$ for SCD78XXAC, C $T_{high} = +125^\circ\text{C}$ for SCD78XXAC, C
= -40°C for SCD78XXB, SCD78XXAB

4. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.

SCD7800, SCD7800A

ELECTRICAL CHARACTERISTICS ($V_{in} = 11\text{ V}$, $I_O = 500\text{ mA}$, $T_J = T_{low}$ to T_{high} (Note 5), unless otherwise noted)

Characteristic	Symbol	SCD7806B			SCD7806C			Unit
		Min	Typ	Max	Min	Typ	Max	
Output Voltage ($T_J = 25^\circ\text{C}$)	V_O	5.75	6.0	6.25	5.75	6.0	6.25	Vdc
Output Voltage ($5.0\text{ mA} \leq I_O \leq 1.0\text{ A}$, $P_D \leq 15\text{ W}$)	V_O							Vdc
8.0 Vdc $\leq V_{in} \leq 21\text{ Vdc}$		–	–	–	5.7	6.0	6.3	
9.0 Vdc $\leq V_{in} \leq 21\text{ Vdc}$		5.7	6.0	6.3	–	–	–	
Line Regulation, $T_J = 25^\circ\text{C}$ (Note 6)	Reg_{line}							mV
8.0 Vdc $\leq V_{in} \leq 25\text{ Vdc}$		–	5.5	120	–	0.5	24	
9.0 Vdc $\leq V_{in} \leq 13\text{ Vdc}$		–	1.4	60	–	0.8	12	
Load Regulation, $T_J = 25^\circ\text{C}$ (Note 6)	Reg_{load}	–	1.3	120	–	1.3	30	mV
5.0 mA $\leq I_O \leq 1.5\text{ A}$								
Quiescent Current ($T_J = 25^\circ\text{C}$)	I_B	–	3.3	8.0	–	3.3	8.0	mA
Quiescent Current Change	ΔI_B							mA
8.0 Vdc $\leq V_{in} \leq 25\text{ Vdc}$		–	–	–	–	0.3	1.3	
5.0 mA $\leq I_O \leq 1.0\text{ A}$		–	–	0.5	–	0.08	0.5	
Ripple Rejection	RR	–	65	–	58	65	–	dB
9.0 Vdc $\leq V_{in} \leq 19\text{ Vdc}$, $f = 120\text{ Hz}$								
Dropout Voltage ($I_O = 1.0\text{ A}$, $T_J = 25^\circ\text{C}$)	$V_I - V_O$	–	2.0	–	–	2.0	–	Vdc
Output Noise Voltage ($T_A = 25^\circ\text{C}$)	V_n	–	10	–	–	10	–	$\mu\text{V}/V_O$
10 Hz $\leq f \leq 100\text{ kHz}$								
Output Resistance $f = 1.0\text{ kHz}$	r_O	–	0.9	–	–	0.9	–	$\text{m}\Omega$
Short Circuit Current Limit ($T_A = 25^\circ\text{C}$)	I_{SC}	–	0.2	–	–	0.2	–	A
$V_{in} = 35\text{ Vdc}$								
Peak Output Current ($T_J = 25^\circ\text{C}$)	I_{max}	–	2.2	–	–	2.2	–	A
Average Temperature Coefficient of Output Voltage	TCV_O	–	–0.3	–	–	–0.3	–	$\text{mV}/^\circ\text{C}$

5. $T_{low} = 0^\circ\text{C}$ for SCD78XXAC, C $T_{high} = +125^\circ\text{C}$ for SCD78XXAC
 $= -40^\circ\text{C}$ for SCD78XXB, SCD78XXAB

6. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.

SCD7800, SCD7800A

ELECTRICAL CHARACTERISTICS ($V_{in} = 14\text{ V}$, $I_O = 500\text{ mA}$, $T_J = T_{low}$ to T_{high} (Note 7), unless otherwise noted)

Characteristic	Symbol	SCD7808B			SCD7808C			Unit
		Min	Typ	Max	Min	Typ	Max	
Output Voltage ($T_J = 25^\circ\text{C}$)	V_O	7.7	8.0	8.3	7.7	8.0	8.3	Vdc
Output Voltage ($5.0\text{ mA} \leq I_O \leq 1.0\text{ A}$, $P_D \leq 15\text{ W}$)	V_O							Vdc
10.5 Vdc $\leq V_{in} \leq 23\text{ Vdc}$		–	–	–	7.6	8.0	8.4	
11.5 Vdc $\leq V_{in} \leq 23\text{ Vdc}$		7.6	8.0	8.4	–	–	–	
Line Regulation, $T_J = 25^\circ\text{C}$, (Note 8)	Reg_{line}							mV
10.5 Vdc $\leq V_{in} \leq 25\text{ Vdc}$		–	6.0	160	–	6.0	32	
11 Vdc $\leq V_{in} \leq 17\text{ Vdc}$		–	1.7	80	–	1.7	16	
Load Regulation, $T_J = 25^\circ\text{C}$ (Note 8)	Reg_{load}	–	1.4	160	–	1.4	35	mV
5.0 mA $\leq I_O \leq 1.5\text{ A}$								
Quiescent Current	I_B	–	3.3	8.0	–	3.3	8.0	mA
Quiescent Current Change	ΔI_B							mA
10.5 Vdc $\leq V_{in} \leq 25\text{ Vdc}$		–	–	–	–	–	1.0	
5.0 mA $\leq I_O \leq 1.0\text{ A}$		–	–	0.5	–	–	0.5	
Ripple Rejection	RR	–	62	–	56	62	–	dB
11.5 Vdc $\leq V_{in} \leq 18\text{ Vdc}$, $f = 120\text{ Hz}$								
Dropout Voltage ($I_O = 1.0\text{ A}$, $T_J = 25^\circ\text{C}$)	$V_I - V_O$	–	2.0	–	–	2.0	–	Vdc
Output Noise Voltage ($T_A = 25^\circ\text{C}$)	V_n	–	10	–	–	10	–	$\mu\text{V}/V_O$
10 Hz $\leq f \leq 100\text{ kHz}$								
Output Resistance $f = 1.0\text{ kHz}$	r_O	–	0.9	–	–	0.9	–	$\text{m}\Omega$
Short Circuit Current Limit ($T_A = 25^\circ\text{C}$)	I_{SC}	–	0.2	–	–	0.2	–	A
$V_{in} = 35\text{ Vdc}$								
Peak Output Current ($T_J = 25^\circ\text{C}$)	I_{max}	–	2.2	–	–	2.2	–	A
Average Temperature Coefficient of Output Voltage	TCV_O	–	–0.4	–	–	–0.4	–	$\text{mV}/^\circ\text{C}$

7. $T_{low} = 0^\circ\text{C}$ for SCD78XXAC, C $T_{high} = +125^\circ\text{C}$ for SCD78XXAC, C
 $= -40^\circ\text{C}$ for SCD78XXB, SCD78XXAB

8. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.

SCD7800, SCD7800A

ELECTRICAL CHARACTERISTICS ($V_{in} = 15\text{ V}$, $I_O = 500\text{ mA}$, $T_J = T_{low}$ to T_{high} (Note 9), unless otherwise noted)

Characteristic	Symbol	SCD7809B			SCD7809C			Unit
		Min	Typ	Max	Min	Typ	Max	
Output Voltage ($T_J = 25^\circ\text{C}$)	V_O	8.65	9.0	9.35	8.65	9.0	9.35	Vdc
Output Voltage ($5.0\text{ mA} \leq I_O \leq 1.0\text{ A}$, $P_D \leq 15\text{ W}$) $11.5\text{ Vdc} \leq V_{in} \leq 24\text{ Vdc}$	V_O	8.55	9.0	9.45	8.55	9.0	9.45	Vdc
Line Regulation, $T_J = 25^\circ\text{C}$ (Note 10) $11\text{ Vdc} \leq V_{in} \leq 26\text{ Vdc}$ $11.5\text{ Vdc} \leq V_{in} \leq 17\text{ Vdc}$	Reg_{line}	–	6.2	32	–	6.2	32	mV
Load Regulation, $T_J = 25^\circ\text{C}$ (Note 10) $5.0\text{ mA} \leq I_O \leq 1.5\text{ A}$	Reg_{load}	–	1.5	35	–	1.5	35	mV
Quiescent Current	I_B	–	3.4	8.0	–	3.4	8.0	mA
Quiescent Current Change $11.5\text{ Vdc} \leq V_{in} \leq 26\text{ Vdc}$ $5.0\text{ mA} \leq I_O \leq 1.0\text{ A}$	ΔI_B	–	–	1.0	–	–	1.0	mA
Ripple Rejection $11.5\text{ Vdc} \leq V_{in} \leq 21.5\text{ Vdc}$, $f = 120\text{ Hz}$	RR	56	61	–	56	61	–	dB
Dropout Voltage ($I_O = 1.0\text{ A}$, $T_J = 25^\circ\text{C}$)	$V_I - V_O$	–	2.0	–	–	2.0	–	Vdc
Output Noise Voltage ($T_A = 25^\circ\text{C}$) $10\text{ Hz} \leq f \leq 100\text{ kHz}$	V_n	–	10	–	–	10	–	$\mu\text{V}/V_O$
Output Resistance $f = 1.0\text{ kHz}$	r_O	–	1.0	–	–	1.0	–	$\text{m}\Omega$
Short Circuit Current Limit ($T_A = 25^\circ\text{C}$) $V_{in} = 35\text{ Vdc}$	I_{SC}	–	0.2	–	–	0.2	–	A
Peak Output Current ($T_J = 25^\circ\text{C}$)	I_{max}	–	2.2	–	–	2.2	–	A
Average Temperature Coefficient of Output Voltage	TCV_O	–	–0.5	–	–	–0.5	–	$\text{mV}/^\circ\text{C}$

9. $T_{low} = 0^\circ\text{C}$ for SCD78XXAC, C $T_{high} = +125^\circ\text{C}$ for SCD78XXAC, C
 $= -40^\circ\text{C}$ for SCD78XXB, SCD78XXAB

10. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.

SCD7800, SCD7800A

ELECTRICAL CHARACTERISTICS ($V_{in} = 15\text{ V}$, $I_O = 1.0\text{ A}$, $T_J = 0^\circ\text{C}$ to 125°C , unless otherwise noted)

Characteristic	Symbol	SCD7809AC			Unit
		Min	Typ	Max	
Output Voltage ($T_J = 25^\circ\text{C}$)	V_O	8.82	9.0	9.18	Vdc
Output Voltage ($5.0\text{ mA} \leq I_O \leq 1.0\text{ A}$, $P_D \leq 15\text{ W}$) $11.5\text{ Vdc} \leq V_{in} \leq 24\text{ Vdc}$	V_O	8.65	9.0	9.35	Vdc
Line Regulation (Note 11) $11.5\text{ Vdc} \leq V_{in} \leq 26\text{ Vdc}$, $I_O = 500\text{ mA}$ $12\text{ Vdc} \leq V_{in} \leq 17\text{ Vdc}$, $I_O = 1.0\text{ A}$ $11.5\text{ Vdc} \leq V_{in} \leq 24\text{ Vdc}$, $T_J = 25^\circ\text{C}$	Regline	–	6.2 1.8 5.2	16 7.0 16	mV
Load Regulation (Note 11) $5.0\text{ mA} \leq I_O \leq 1.5\text{ A}$, $T_J = 25^\circ\text{C}$ $5.0\text{ mA} \leq I_O \leq 1.0\text{ A}$ $250\text{ mA} \leq I_O \leq 750\text{ mA}$	Regload	–	–	25 25 15	mV
Quiescent Current	I_B	–	3.3	6.0	mA
Quiescent Current Change $11.5\text{ Vdc} \leq V_{in} \leq 26\text{ Vdc}$, $I_O = 500\text{ mA}$ $11.5\text{ Vdc} \leq V_{in} \leq 24\text{ Vdc}$, $I_O = 1.0\text{ A}$, $T_J = 25^\circ\text{C}$ $5.0\text{ mA} \leq I_O \leq 1.0\text{ A}$	ΔI_B	–	–	0.8 0.8 0.5	mA
Ripple Rejection $11.5\text{ Vdc} \leq V_{in} \leq 21.5\text{ Vdc}$, $f = 120\text{ Hz}$, $I_O = 500\text{ mA}$	RR	56	61	–	dB
Dropout Voltage ($I_O = 1.0\text{ A}$, $T_J = 25^\circ\text{C}$)	V_{I_VO}		2.0		Vdc
Output Noise Voltage ($T_A = 25^\circ\text{C}$) $10\text{ Hz} \leq f \leq 100\text{ kHz}$	V_n	–	10	–	$\mu\text{V}/V_O$
Output Resistance $f = 1.0\text{ kHz}$	r_O	–	1.0	–	$\text{m}\Omega$
Short Circuit Current Limit ($T_A = 25^\circ\text{C}$) $V_{in} = 35\text{ Vdc}$	I_{SC}	–	0.2		A
Peak Output Current ($T_J = 25^\circ\text{C}$)	I_{max}	–	2.2	–	A
Average Temperature Coefficient of Output Voltage	TCV_O	–	–0.5	–	$\text{mV}/^\circ\text{C}$

11. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.

SCD7800, SCD7800A

ELECTRICAL CHARACTERISTICS ($V_{in} = 19\text{ V}$, $I_O = 500\text{ mA}$, $T_J = T_{low}$ to T_{high} (Note 12), unless otherwise noted)

Characteristic	Symbol	SCD7812B			SCD7812C			Unit
		Min	Typ	Max	Min	Typ	Max	
Output Voltage ($T_J = 25^\circ\text{C}$)	V_O	11.5	12	12.5	11.5	12	12.5	Vdc
Output Voltage ($5.0\text{ mA} \leq I_O \leq 1.0\text{ A}$, $P_D \leq 15\text{ W}$)	V_O							Vdc
14.5 Vdc $\leq V_{in} \leq 27\text{ Vdc}$		–	–	–	11.4	12	12.6	
15.5 Vdc $\leq V_{in} \leq 27\text{ Vdc}$		11.4	12	12.6	–	–	–	
Line Regulation, $T_J = 25^\circ\text{C}$ (Note 13)	Reg_{line}							mV
14.5 Vdc $\leq V_{in} \leq 30\text{ Vdc}$		–	7.5	240	–	3.8	24	
16 Vdc $\leq V_{in} \leq 22\text{ Vdc}$		–	2.2	120	–	0.3	24	
14.8 Vdc $\leq V_{in} \leq 27\text{ Vdc}$, $I_O = 1.0\text{ A}$		–	–	–	–	–	48	
Load Regulation, $T_J = 25^\circ\text{C}$ (Note 13)	Reg_{load}	–	1.6	240	–	8.1	60	mV
5.0 mA $\leq I_O \leq 1.5\text{ A}$								
Quiescent Current	I_B	–	3.4	8.0	–	3.4	6.5	mA
Quiescent Current Change	ΔI_B							mA
14.5 Vdc $\leq V_{in} \leq 30\text{ Vdc}$, $I_O = 1.0\text{ A}$, $T_J = 25^\circ\text{C}$		–	–	–	–	–	0.7	
15 Vdc $\leq V_{in} \leq 30\text{ Vdc}$		–	–	1.0	–	–	0.8	
5.0 mA $\leq I_O \leq 1.0\text{ A}$		–	–	0.5	–	–	0.5	
Ripple Rejection	RR	–	60	–	55	60	–	dB
15 Vdc $\leq V_{in} \leq 25\text{ Vdc}$, $f = 120\text{ Hz}$								
Dropout Voltage ($I_O = 1.0\text{ A}$, $T_J = 25^\circ\text{C}$)	$V_I - V_O$	–	2.0	–	–	2.0	–	Vdc
Output Noise Voltage ($T_A = 25^\circ\text{C}$)	V_n	–	10	–	–	10	–	$\mu\text{V}/V_O$
10 Hz $\leq f \leq 100\text{ kHz}$								
Output Resistance $f = 1.0\text{ kHz}$	r_O	–	1.1	–	–	1.1	–	$\text{m}\Omega$
Short Circuit Current Limit ($T_A = 25^\circ\text{C}$)	I_{SC}	–	0.2	–	–	0.2	–	A
$V_{in} = 35\text{ Vdc}$								
Peak Output Current ($T_J = 25^\circ\text{C}$)	I_{max}	–	2.2	–	–	2.2	–	A
Average Temperature Coefficient of Output Voltage	TCV_O	–	–0.8	–	–	–0.8	–	$\text{mV}/^\circ\text{C}$

12. $T_{low} = 0^\circ\text{C}$ for SCD78XXAC, C $T_{high} = +125^\circ\text{C}$ for SCD78XXAC, C
 $= -40^\circ\text{C}$ for SCD78XXB, SCD78XXAB

13. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.

SCD7800, SCD7800A

ELECTRICAL CHARACTERISTICS ($V_{in} = 19\text{ V}$, $I_O = 1.0\text{ A}$, $T_J = T_{low}$ to T_{high} (Note 14), unless otherwise noted)

Characteristic	Symbol	SCD7812AB/SCD7812AC			Unit
		Min	Typ	Max	
Output Voltage ($T_J = 25^\circ\text{C}$)	V_O	11.75	12	12.25	Vdc
Output Voltage ($5.0\text{ mA} \leq I_O \leq 1.0\text{ A}$, $P_D \leq 15\text{ W}$) $14.8\text{ Vdc} \leq V_{in} \leq 27\text{ Vdc}$	V_O	11.5	12	12.5	Vdc
Line Regulation (Note 15) $14.8\text{ Vdc} \leq V_{in} \leq 30\text{ Vdc}$, $I_O = 500\text{ mA}$ $16\text{ Vdc} \leq V_{in} \leq 22\text{ Vdc}$, $I_O = 1.0\text{ A}$ $14.5\text{ Vdc} \leq V_{in} \leq 27\text{ Vdc}$, $T_J = 25^\circ\text{C}$	Reg_{line}	–	3.8 2.2 6.0	18 20 120	mV
Load Regulation (Note 15) $5.0\text{ mA} \leq I_O \leq 1.5\text{ A}$, $T_J = 25^\circ\text{C}$ $5.0\text{ mA} \leq I_O \leq 1.0\text{ A}$	Reg_{load}	– –	– –	25 25	mV
Quiescent Current	I_B	–	3.4	6.0	mA
Quiescent Current Change $15\text{ Vdc} \leq V_{in} \leq 30\text{ Vdc}$, $I_O = 500\text{ mA}$ $14.8\text{ Vdc} \leq V_{in} \leq 27\text{ Vdc}$, $T_J = 25^\circ\text{C}$ $5.0\text{ mA} \leq I_O \leq 1.0\text{ A}$, $T_J = 25^\circ\text{C}$	ΔI_B	– – –	– – –	0.8 0.8 0.5	mA
Ripple Rejection $15\text{ Vdc} \leq V_{in} \leq 25\text{ Vdc}$, $f = 120\text{ Hz}$, $I_O = 500\text{ mA}$	RR	55	60	–	dB
Dropout Voltage ($I_O = 1.0\text{ A}$, $T_J = 25^\circ\text{C}$)	$V_I - V_O$	–	2.0	–	Vdc
Output Noise Voltage ($T_A = 25^\circ\text{C}$) $10\text{ Hz} \leq f \leq 100\text{ kHz}$	V_n	–	10	–	$\mu\text{V}/V_O$
Output Resistance ($f = 1.0\text{ kHz}$)	r_O	–	1.1	–	$\text{m}\Omega$
Short Circuit Current Limit ($T_A = 25^\circ\text{C}$) $V_{in} = 35\text{ Vdc}$	I_{SC}	–	0.2	–	A
Peak Output Current ($T_J = 25^\circ\text{C}$)	I_{max}	–	2.2	–	A
Average Temperature Coefficient of Output Voltage	TCV_O	–	–0.8	–	$\text{mV}/^\circ\text{C}$

14. $T_{low} = 0^\circ\text{C}$ for SCD78XXAC, C $T_{high} = +125^\circ\text{C}$ for SCD78XXAC, C
= -40°C for SCD78XXB, SCD78XXAB

15. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.

SCD7800, SCD7800A

ELECTRICAL CHARACTERISTICS ($V_{in} = 23\text{ V}$, $I_O = 500\text{ mA}$, $T_J = T_{low}$ to T_{high} (Note 16), unless otherwise noted)

Characteristic	Symbol	SCD7815B			SCD7815C			Unit
		Min	Typ	Max	Min	Typ	Max	
Output Voltage ($T_J = 25^\circ\text{C}$)	V_O	14.4	15	15.6	14.4	15	15.6	Vdc
Output Voltage ($5.0\text{ mA} \leq I_O \leq 1.0\text{ A}$, $P_D \leq 15\text{ W}$)	V_O							Vdc
17.5 Vdc $\leq V_{in} \leq 30\text{ Vdc}$		–	–	–	14.25	15	15.75	
18.5 Vdc $\leq V_{in} \leq 30\text{ Vdc}$		14.25	15	15.75	–	–	–	
Line Regulation, $T_J = 25^\circ\text{C}$ (Note 17)	Reg_{line}							mV
17.9 Vdc $\leq V_{in} \leq 30\text{ Vdc}$		–	8.5	300	–	8.5	30	
20 Vdc $\leq V_{in} \leq 26\text{ Vdc}$		–	3.0	150	–	3.0	28	
Load Regulation, $T_J = 25^\circ\text{C}$ (Note 17)	Reg_{load}	–	1.8	300	–	1.8	55	mV
5.0 mA $\leq I_O \leq 1.5\text{ A}$								
Quiescent Current	I_B	–	3.5	8.0	–	3.5	6.5	mA
Quiescent Current Change	ΔI_B							mA
17.5 Vdc $\leq V_{in} \leq 30\text{ Vdc}$		–	–	–	–	–	0.8	
17.5 Vdc $\leq V_{in} \leq 30\text{ Vdc}$, $I_O = 1.0\text{ A}$, $T_J = 25^\circ\text{C}$		–	–	1.0	–	–	0.7	
5.0 mA $\leq I_O \leq 1.0\text{ A}$		–	–	0.5	–	–	0.5	
Ripple Rejection	RR	–	58	–	54	58	–	dB
18.5 Vdc $\leq V_{in} \leq 28.5\text{ Vdc}$, $f = 120\text{ Hz}$								
Dropout Voltage ($I_O = 1.0\text{ A}$, $T_J = 25^\circ\text{C}$)	$V_I - V_O$	–	2.0	–	–	2.0	–	Vdc
Output Noise Voltage ($T_A = 25^\circ\text{C}$)	V_n	–	10	–	–	10	–	$\mu\text{V}/V_O$
10 Hz $\leq f \leq 100\text{ kHz}$								
Output Resistance $f = 1.0\text{ kHz}$	r_O	–	1.2	–	–	1.2	–	$\text{m}\Omega$
Short Circuit Current Limit ($T_A = 25^\circ\text{C}$)	I_{SC}	–	0.2	–	–	0.2	–	A
$V_{in} = 35\text{ Vdc}$								
Peak Output Current ($T_J = 25^\circ\text{C}$)	I_{max}	–	2.2	–	–	2.2	–	A
Average Temperature Coefficient of Output Voltage	TCV_O	–	–1.0	–	–	–1.0	–	$\text{mV}/^\circ\text{C}$

16. $T_{low} = 0^\circ\text{C}$ for SCD78XXAC, C $T_{high} = +125^\circ\text{C}$ for SCD78XXAC, C
= -40°C for SCD78XXB, SCD78XXAB

17. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.

SCD7800, SCD7800A

ELECTRICAL CHARACTERISTICS ($V_{in} = 23\text{ V}$, $I_O = 1.0\text{ A}$, $T_J = T_{low}$ to T_{high} (Note 18), unless otherwise noted)

Characteristic	Symbol	SCD7815AB/SCD7815AC			Unit
		Min	Typ	Max	
Output Voltage ($T_J = 25^\circ\text{C}$)	V_O	14.7	15	15.3	Vdc
Output Voltage ($5.0\text{ mA} \leq I_O \leq 1.0\text{ A}$, $P_D \leq 15\text{ W}$) $17.9\text{ Vdc} \leq V_{in} \leq 30\text{ Vdc}$	V_O	14.4	15	15.6	Vdc
Line Regulation (Note 19) $17.9\text{ Vdc} \leq V_{in} \leq 30\text{ Vdc}$, $I_O = 500\text{ mA}$ $20\text{ Vdc} \leq V_{in} \leq 26\text{ Vdc}$ $17.5\text{ Vdc} \leq V_{in} \leq 30\text{ Vdc}$, $I_O = 1.0\text{ A}$, $T_J = 25^\circ\text{C}$	Reg_{line}	–	8.5 3.0 7.0	20 22 20	mV
Load Regulation (Note 19) $5.0\text{ mA} \leq I_O \leq 1.5\text{ A}$, $T_J = 25^\circ\text{C}$ $5.0\text{ mA} \leq I_O \leq 1.0\text{ A}$ $250\text{ mA} \leq I_O \leq 750\text{ mA}$	Reg_{load}	–	1.8 1.5 1.2	25 25 15	mV
Quiescent Current	I_B	–	3.5	6.0	mA
Quiescent Current Change $17.5\text{ Vdc} \leq V_{in} \leq 30\text{ Vdc}$, $I_O = 500\text{ mA}$ $17.5\text{ Vdc} \leq V_{in} \leq 30\text{ Vdc}$, $I_O = 1.0\text{ A}$, $T_J = 25^\circ\text{C}$ $5.0\text{ mA} \leq I_O \leq 1.0\text{ A}$	ΔI_B	–	–	0.8 0.8 0.5	mA
Ripple Rejection $18.5\text{ Vdc} \leq V_{in} \leq 28.5\text{ Vdc}$, $f = 120\text{ Hz}$, $I_O = 500\text{ mA}$	RR	60	80	–	dB
Dropout Voltage ($I_O = 1.0\text{ A}$, $T_J = 25^\circ\text{C}$)	$V_I - V_O$	–	2.0	–	Vdc
Output Noise Voltage ($T_A = 25^\circ\text{C}$) $10\text{ Hz} \leq f \leq 100\text{ kHz}$	V_n	–	10	–	$\mu\text{V}/V_O$
Output Resistance $f = 1.0\text{ kHz}$	r_O	–	1.2	–	$\text{m}\Omega$
Short Circuit Current Limit ($T_A = 25^\circ\text{C}$) $V_{in} = 35\text{ Vdc}$	I_{SC}	–	0.2	–	A
Peak Output Current ($T_J = 25^\circ\text{C}$)	I_{max}	–	2.2	–	A
Average Temperature Coefficient of Output Voltage	TCV_O	–	–1.0	–	$\text{mV}/^\circ\text{C}$

18. $T_{low} = 0^\circ\text{C}$ for SCD78XXAC, C $T_{high} = +125^\circ\text{C}$ for SCD78XXAC, C
= -40°C for SCD78XXB, SCD78XXAB

19. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.

SCD7800, SCD7800A

ELECTRICAL CHARACTERISTICS ($V_{in} = 27\text{ V}$, $I_O = 500\text{ mA}$, $T_J = T_{low}$ to T_{high} (Note 20), unless otherwise noted)

Characteristic	Symbol	SCD7818B			SCD7818C			Unit
		Min	Typ	Max	Min	Typ	Max	
Output Voltage ($T_J = 25^\circ\text{C}$)	V_O	17.3	18	18.7	17.3	18	18.7	Vdc
Output Voltage ($5.0\text{ mA} \leq I_O \leq 1.0\text{ A}$, $P_D \leq 15\text{ W}$)	V_O							Vdc
21 Vdc $\leq V_{in} \leq 33\text{ Vdc}$		–	–	–	17.1	18	18.9	
22 Vdc $\leq V_{in} \leq 33\text{ Vdc}$		17.1	18	18.9	–	–	–	
Line Regulation, (Note 21)	Reg_{line}							mV
21 Vdc $\leq V_{in} \leq 33\text{ Vdc}$		–	9.5	360	–	9.5	50	
24 Vdc $\leq V_{in} \leq 30\text{ Vdc}$		–	3.2	180	–	3.2	25	
Load Regulation, (Note 21)	Reg_{load}	–	2.0	360	–	2.0	55	mV
5.0 mA $\leq I_O \leq 1.5\text{ A}$								
Quiescent Current	I_B	–	3.5	8.0	–	3.5	6.5	mA
Quiescent Current Change	ΔI_B							mA
21 Vdc $\leq V_{in} \leq 33\text{ Vdc}$		–	–	–	–	–	1.0	
5.0 mA $\leq I_O \leq 1.0\text{ A}$		–	–	0.5	–	–	0.5	
Ripple Rejection	RR	–	57	–	53	57	–	dB
22 Vdc $\leq V_{in} \leq 33\text{ Vdc}$, $f = 120\text{ Hz}$								
Dropout Voltage ($I_O = 1.0\text{ A}$, $T_J = 25^\circ\text{C}$)	$V_{il} - V_O$	–	2.0	–	–	2.0	–	Vdc
Output Noise Voltage ($T_A = 25^\circ\text{C}$)	V_n	–	10	–	–	10	–	$\mu\text{V}/V_O$
10 Hz $\leq f \leq 100\text{ kHz}$								
Output Resistance $f = 1.0\text{ kHz}$	r_O	–	1.3	–	–	1.3	–	$\text{m}\Omega$
Short Circuit Current Limit ($T_A = 25^\circ\text{C}$)	I_{SC}	–	0.2	–	–	0.2	–	A
$V_{in} = 35\text{ Vdc}$								
Peak Output Current ($T_J = 25^\circ\text{C}$)	I_{max}	–	2.2	–	–	2.2	–	A
Average Temperature Coefficient of Output Voltage	TCV_O	–	–1.5	–	–	–1.5	–	$\text{mV}/^\circ\text{C}$

20. $T_{low} = 0^\circ\text{C}$ for SCD78XXAC, C $T_{high} = +125^\circ\text{C}$ for SCD78XXAC, C
 $= -40^\circ\text{C}$ for SCD78XXB, SCD78XXAB

21. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.

SCD7800, SCD7800A

ELECTRICAL CHARACTERISTICS ($V_{in} = 33\text{ V}$, $I_O = 500\text{ mA}$, $T_J = T_{low}$ to T_{high} (Note 22), unless otherwise noted)

Characteristic	Symbol	SCD7824B			SCD7824C			Unit
		Min	Typ	Max	Min	Typ	Max	
Output Voltage ($T_J = 25^\circ\text{C}$)	V_O	23	24	25	23	24	25	Vdc
Output Voltage ($5.0\text{ mA} \leq I_O \leq 1.0\text{ A}$, $P_D \leq 15\text{ W}$)	V_O							Vdc
27 Vdc $\leq V_{in} \leq 38\text{ Vdc}$		–	–	–	22.8	24	25.2	
28 Vdc $\leq V_{in} \leq 38\text{ Vdc}$		22.8	24	25.2	–	–	–	
Line Regulation, (Note 23)	Reg_{line}							mV
27 Vdc $\leq V_{in} \leq 38\text{ Vdc}$		–	11.5	480	–	2.7	60	
30 Vdc $\leq V_{in} \leq 36\text{ Vdc}$		–	3.8	240	–	2.7	48	
Load Regulation, (Note 23)	Reg_{load}	–	2.1	480	–	4.4	65	mV
5.0 mA $\leq I_O \leq 1.5\text{ A}$								
Quiescent Current	I_B	–	3.6	8.0	–	3.6	6.5	mA
Quiescent Current Change	ΔI_B							mA
27 Vdc $\leq V_{in} \leq 38\text{ Vdc}$		–	–	–	–	–	1.0	
5.0 mA $\leq I_O \leq 1.0\text{ A}$		–	–	0.5	–	–	0.5	
Ripple Rejection	RR	–	54	–	50	54	–	dB
28 Vdc $\leq V_{in} \leq 38\text{ Vdc}$, $f = 120\text{ Hz}$								
Dropout Voltage ($I_O = 1.0\text{ A}$, $T_J = 25^\circ\text{C}$)	$V_I - V_O$	–	2.0	–	–	2.0	–	Vdc
Output Noise Voltage ($T_A = 25^\circ\text{C}$)	V_n	–	10	–	–	10	–	$\mu\text{V}/V_O$
10 Hz $\leq f \leq 100\text{ kHz}$								
Output Resistance $f = 1.0\text{ kHz}$	r_O	–	1.4	–	–	1.4	–	$\text{m}\Omega$
Short Circuit Current Limit ($T_A = 25^\circ\text{C}$)	I_{SC}	–	0.2	–	–	0.2	–	A
$V_{in} = 35\text{ Vdc}$								
Peak Output Current ($T_J = 25^\circ\text{C}$)	I_{max}	–	2.2	–	–	2.2	–	A
Average Temperature Coefficient of Output Voltage	TCV_O	–	–2.0	–	–	–2.0	–	$\text{mV}/^\circ\text{C}$

22. $T_{low} = 0^\circ\text{C}$ for SCD78XXAC, C $T_{high} = +125^\circ\text{C}$ for SCD78XXAC, C
 $= -40^\circ\text{C}$ for SCD78XXB, SCD78XXAB

23. Load and line regulation are specified at constant junction temperature. Changes in V_O due to heating effects must be taken into account separately. Pulse testing with low duty cycle is used.

SCD7800, SCD7800A

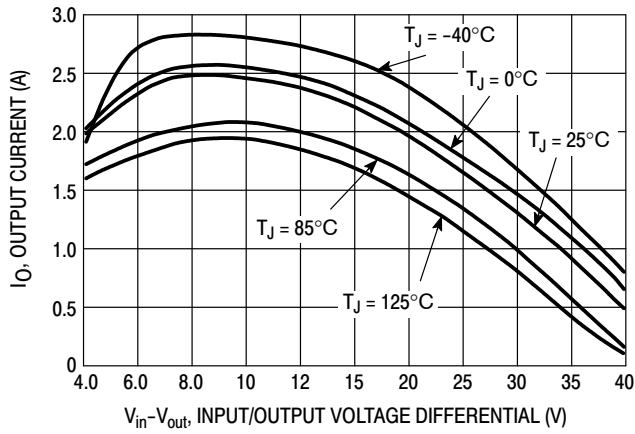


Figure 2. Peak Output Current as a Function of Input/Output Differential Voltage (SCD78XXC, AC, B)

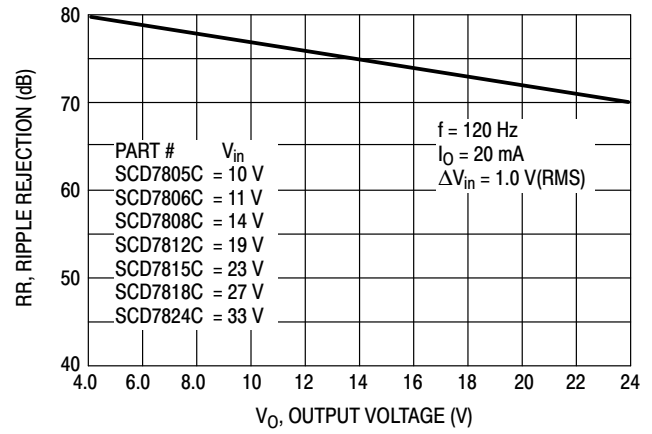


Figure 3. Ripple Rejection as a Function of Output Voltages (SCD78XXC, AC, B)

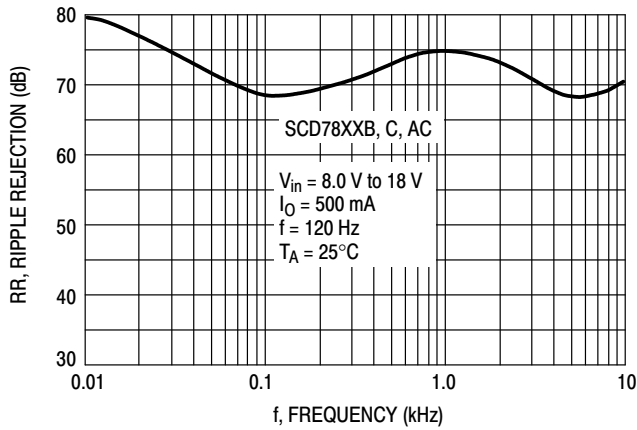


Figure 4. Ripple Rejection as a Function of Frequency (SCD78XXC, AC, B)

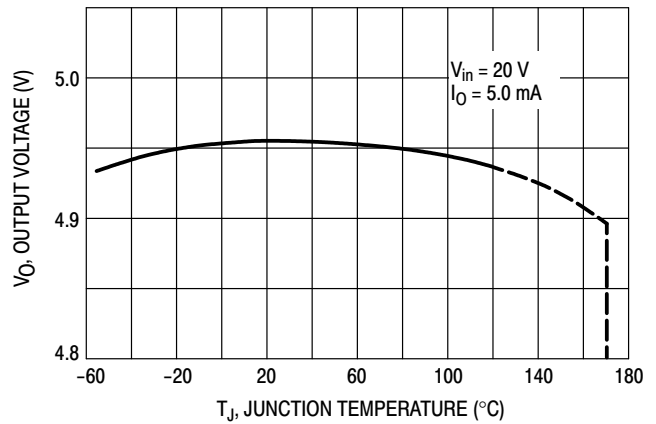


Figure 5. Output Voltage as a Function of Junction Temperature (SCD7805C, AC, B)

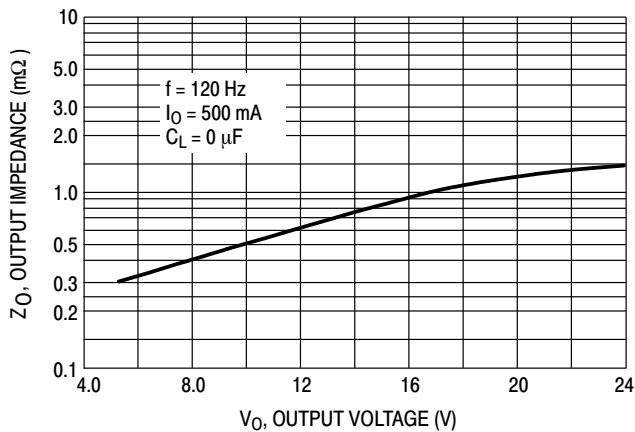


Figure 6. Output Impedance as a Function of Output Voltage (SCD78XXC, AC, B)

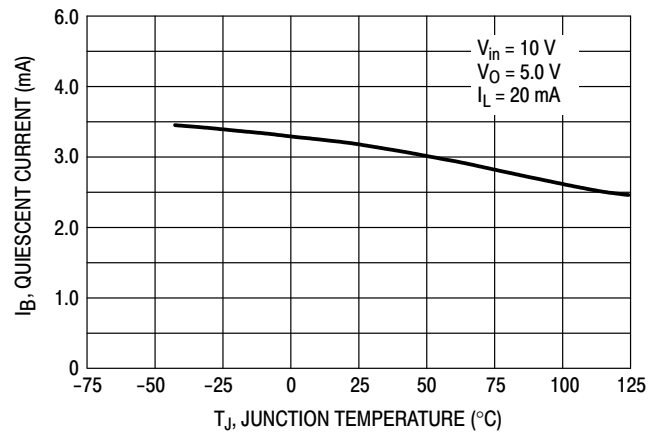


Figure 7. Quiescent Current as a Function of Temperature (SCD78XXC, AC, B)

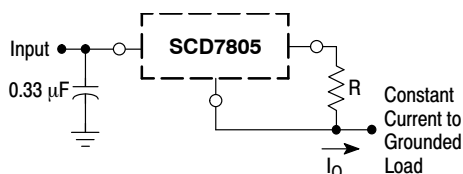
APPLICATIONS INFORMATION

Design Considerations

The SCD7800 Series of fixed voltage regulators are designed with Thermal Overload Protection that shuts down the circuit when subjected to an excessive power overload condition, Internal Short Circuit Protection that limits the maximum current the circuit will pass, and Output Transistor Safe-Area Compensation that reduces the output short circuit current as the voltage across the pass transistor is increased.

In many low current applications, compensation capacitors are not required. However, it is recommended that the regulator input be bypassed with a capacitor if the regulator is connected to the power supply filter with long

wire lengths, or if the output load capacitance is large. An input bypass capacitor should be selected to provide good high-frequency characteristics to insure stable operation under all load conditions. A 0.33 μF or larger tantalum, mylar, or other capacitor having low internal impedance at high frequencies should be chosen. The bypass capacitor should be mounted with the shortest possible leads directly across the regulators input terminals. Normally good construction techniques should be used to minimize ground loops and lead resistance drops since the regulator has no external sense lead.



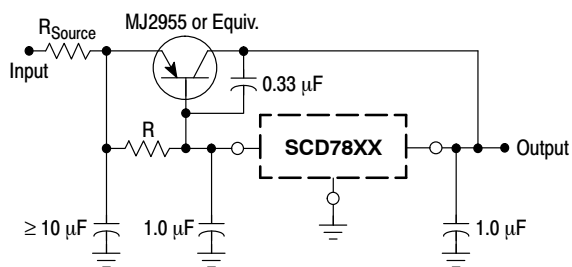
The SCD7800 regulators can also be used as a current source when connected as above. In order to minimize dissipation the SCD7805C is chosen in this application. Resistor R determines the current as follows:

$$I_O = \frac{5.0 \text{ V}}{R} + I_B$$

$I_B \cong 3.2 \text{ mA}$ over line and load changes.

For example, a 1.0 A current source would require R to be a 5.0 Ω , 10 W resistor and the output voltage compliance would be the input voltage less 7.0 V.

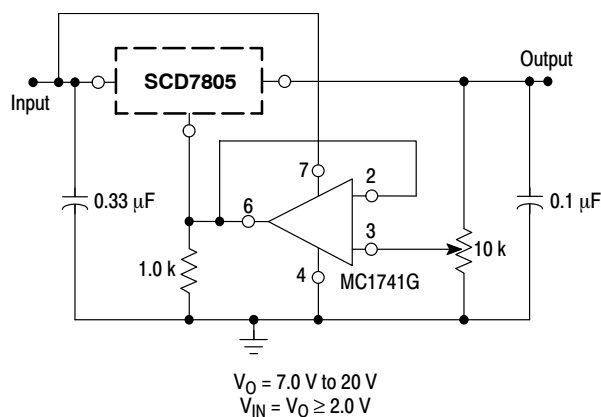
Figure 8. Current Regulator



XX = 2 digits of type number indicating voltage.

The SCD7800 series can be current boosted with a PNP transistor. The MJ2955 provides current to 5.0 A. Resistor R in conjunction with the V_{BE} of the PNP determines when the pass transistor begins conducting; this circuit is not short circuit proof. Input/output differential voltage minimum is increased by V_{BE} of the pass transistor.

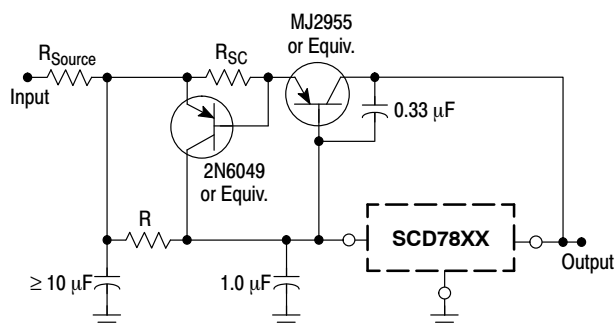
Figure 10. Current Boost Regulator



$V_O = 7.0 \text{ V to } 20 \text{ V}$
 $V_{IN} = V_O \geq 2.0 \text{ V}$

The addition of an operational amplifier allows adjustment to higher or intermediate values while retaining regulation characteristics. The minimum voltage obtainable with this arrangement is 2.0 V greater than the regulator voltage.

Figure 9. Adjustable Output Regulator



XX = 2 digits of type number indicating voltage.

The circuit of Figure 10 can be modified to provide supply protection against short circuits by adding a short circuit sense resistor, R_{SC} , and an additional PNP transistor. The current sensing PNP must be able to handle the short circuit current of the three-terminal regulator. Therefore, a four-ampere plastic power transistor is specified.

Figure 11. Short Circuit Protection

SCD7800, SCD7800A

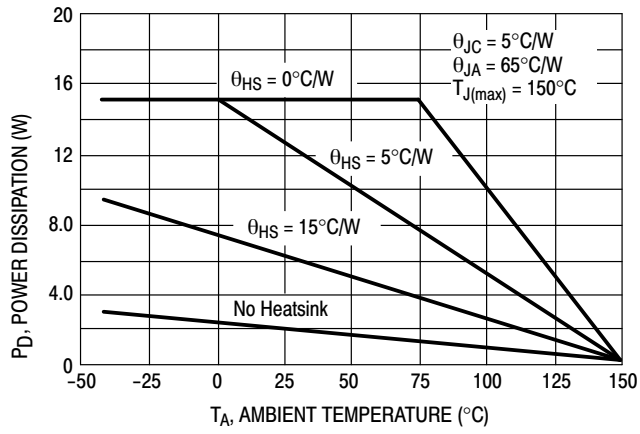


Figure 12. Worst Case Power Dissipation versus Ambient Temperature (Case 221A)

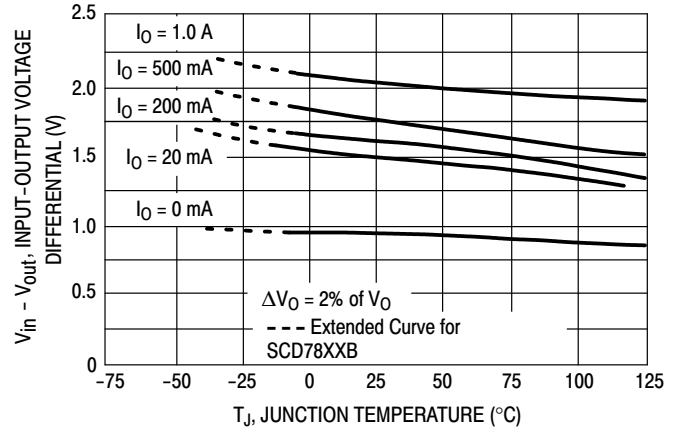


Figure 13. Input Output Differential as a Function of Junction Temperature (SCD78XXC, AC, B)

SCD7800, SCD7800A

DEFINITIONS

Line Regulation – The change in output voltage for a change in the input voltage. The measurement is made under conditions of low dissipation or by using pulse techniques such that the average chip temperature is not significantly affected.

Load Regulation – The change in output voltage for a change in load current at constant chip temperature.

Maximum Power Dissipation – The maximum total device dissipation for which the regulator will operate within specifications.

Quiescent Current – That part of the input current that is not delivered to the load.

Output Noise Voltage – The rms ac voltage at the output, with constant load and no input ripple, measured over a specified frequency range.

Long Term Stability – Output voltage stability under accelerated life test conditions with the maximum rated voltage listed in the devices' electrical characteristics and maximum power dissipation.

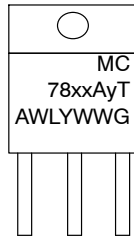
ORDERING INFORMATION

Device	Nominal Voltage	Operating Temperature Range	Package	Shipping [†]
SCD7805ACTG	5.0 V	T = 0°C to +125°C	TO 220 (Pb-free)	50 Units /Rail
SCD7805BTG		T = -40°C to +125°C		
SCD7805CTG		T = 0°C to +125°C		
SCD7806CTG	6.0 V	T = 0°C to +125°C		
SCD7808CTG	8.0 V	T = 0°C to +125°C		
SCD7809ACTG	9.0 V	T = 0°C to +125°C		
SCD7809BTG		T = -40°C to +125°C		
SCD7809CTG		T = 0°C to +125°C		
SCD7812ACTG	12 V	T = 0°C to +125°C		
SCD7812BTG		T = -40°C to +125°C		
SCD7812CTG		T = 0°C to +125°C		
SCD7815ACTG	15 V	T = 0°C to +125°C		
SCD7815BTG		T = -40°C to +125°C		
SCD7815CTG		T = 0°C to +125°C		
SCD7818BTG	18 V	T = -40°C to +125°C		
SCD7824BTG	24 V	T = -40°C to +125°C		
SCD7824CTG		T = 0°C to +125°C		

[†]For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

SCD7800, SCD7800A

MARKING DIAGRAMS



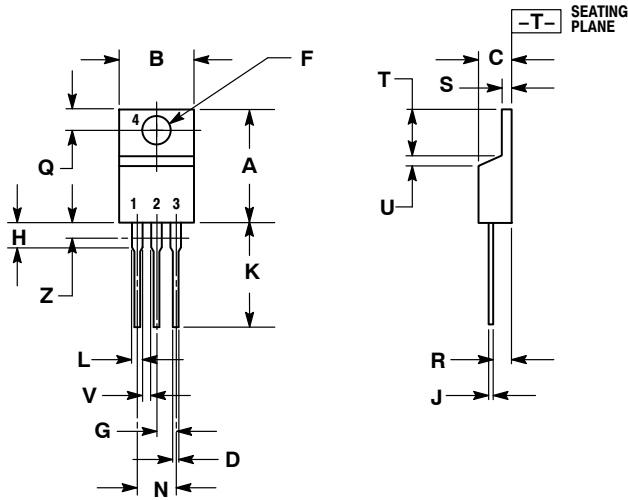
**TO-220-3
T SUFFIX
CASE 221AB**

xx = 05, 06, 08, 09, 12, 15, 18, or 24
y = B or C
A = Assembly Location
WL = Wafer Lot
Y = Year
WW = Work Week
G = Pb-Free Device

SCD7800, SCD7800A

PACKAGE DIMENSIONS

TO-220, SINGLE GAUGE CASE 221AB-01 ISSUE A



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCHES.
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.
4. PRODUCT SHIPPED PRIOR TO 2008 HAD DIMENSIONS
S = 0.045 - 0.055 INCHES (1.143 - 1.397 MM)

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.035	0.64	0.88
F	0.142	0.147	3.61	3.73
G	0.095	0.105	2.42	2.66
H	0.110	0.155	2.80	3.93
J	0.018	0.025	0.46	0.64
K	0.500	0.562	12.70	14.27
L	0.045	0.060	1.15	1.52
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.020	0.024	0.508	0.61
T	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045	---	1.15	---
Z	---	0.080	---	2.04

ON Semiconductor and  are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:

Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
Phone: 303-675-2175 or 800-344-3860 Toll Free USA/Canada
Fax: 303-675-2176 or 800-344-3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800-282-9855 Toll Free
USA/Canada
Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910
Japan Customer Focus Center
Phone: 81-3-5773-3850

ON Semiconductor Website: www.onsemi.com

Order Literature: <http://www.onsemi.com/orderlit>

For additional information, please contact your local Sales Representative

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[onsemi:](#)

[SCD7805BTG](#) [SCD7815BTG](#) [SCD7815CTG](#) [SCD7824BTG](#) [SCD7805ACTG](#) [SCD7805CTG](#)