

NEGATIVE FIXED VOLTAGE REGULATOR

DESCRIPTION

The SG7900A/SG7900 series of negative regulators offer self-contained, fixed-voltage capability with up to 1.5A of load current. With a variety of output voltages and four package options this regulator series is an optimum complement to the SG7800A/SG7800, SG140/SG340 line of three terminal regulators.

These units feature a unique band gap reference which allows the SG7900A series to be specified with an output voltage tolerance of $\pm 1.5\%$. The SG7900A versions also offer much improved line regulation characteristics.

All protective features of thermal shutdown, current limiting, and safe-area control have been designed into these units and since these regulators require only a single output capacitor (SG7900 series) or a capacitor and 5mA minimum load (SG120 series) for satisfactory performance, ease of application is assured.

Although designed as fixed-voltage regulators, the output voltage can be increased through the use of a simple voltage divider. The low quiescent drain current of the device insures good regulation when this method is used, especially for the SG120 series.

These devices are available in hermetically sealed TO-257 (both isolated and non-isolated), TO-3, TO-39 and TO-66 power packages.

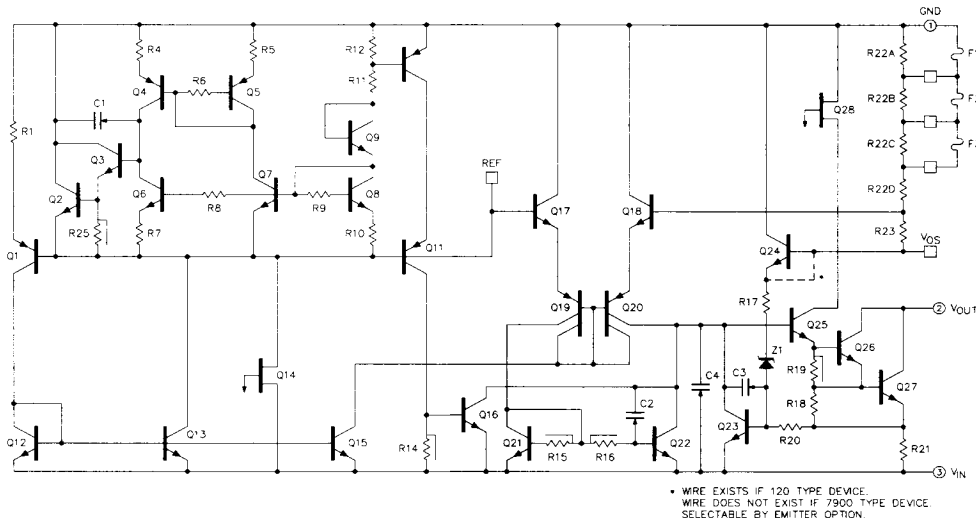
FEATURES

- Output voltage set internally to $\pm 1.5\%$ on SG7900A
- Output current to 1.5A
- Excellent line and load regulation
- Foldback current limiting
- Thermal overload protection
- Voltages available: -5V, -5.2V, -8V, -12V, -15V, -18V, -20V
- Contact factory for other voltage options

HIGH RELIABILITY FEATURES - SG7900A/SG7900

- ♦ Available to MIL-STD - 883
- ♦ MIL-M38510/11501BXA - JAN7905T
- ♦ MIL-M38510/11505BYA - JAN7905K
- ♦ MIL-M38510/11506BYA - JAN7912K
- ♦ MIL-M38510/11507BYA - JAN7915K
- ♦ Scheduled for MIL-M-38510 QPL listing
- ♦ Radiation data available
- ♦ SG level "S" processing available

SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS (Note 1)

Device	Input Voltage	Input Voltage Differential (Output shorted to ground)
Output Voltage		
-5V	-35V	35V
-5.2V	-35V	35V
-8V	-35V	35V
-12V	-35V	35V
-15V	-40V	35V
-18V	-40V	35V
-20V	-40V	35V

Operating Junction Temperature

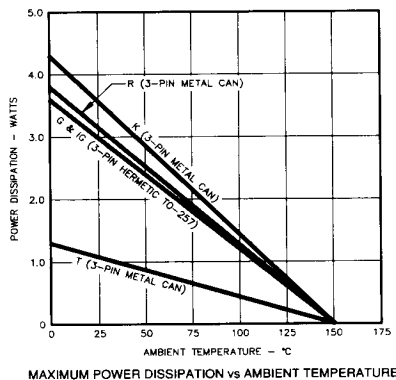
Hermetic (K, R, T, G, IG - Packages) 150°C

Storage Temperature Range -65°C to 150°C

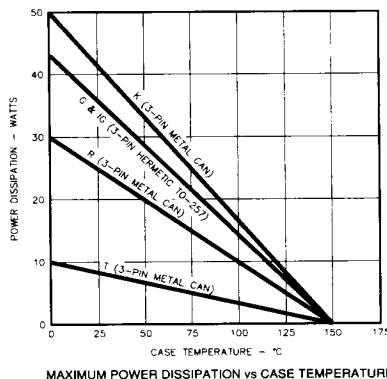
Lead Temperature (Soldering, 10 Seconds) 300°C

Note 1. Values beyond which damage may occur.

THERMAL DERATING CURVES



MAXIMUM POWER DISSIPATION vs AMBIENT TEMPERATURE



MAXIMUM POWER DISSIPATION vs CASE TEMPERATURE

RECOMMENDED OPERATING CONDITIONS (Note 2)

Operating Junction Temperature Range:

SG7900A/7900 -55°C to 150°C

SG7900AC/7900C 0°C to 125°C

Note 2. Range over which the device is functional.

CHARACTERISTIC CURVES

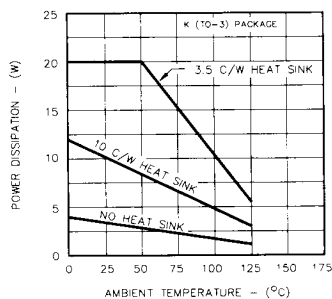


FIGURE 1.
MAXIMUM AVERAGE POWER DISSIPATION

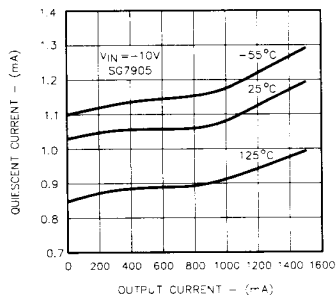


FIGURE 2.
QUIESCENT CURRENT vs. LOAD

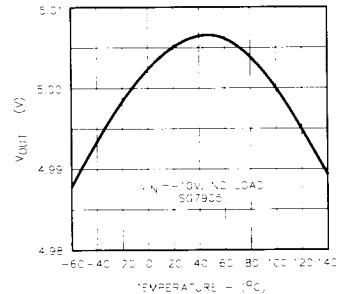


FIGURE 3.
TEMPERATURE COEFFICIENT

CHARACTERISTIC CURVES (continued)

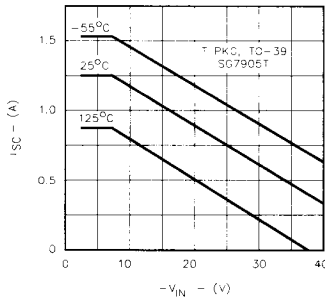


FIGURE 4. SHORTCIRCUIT CURRENT VS. V_{IN}

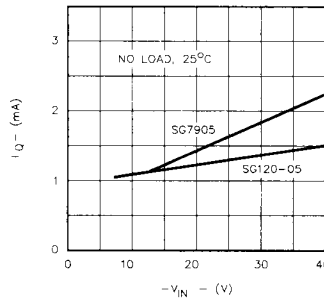


FIGURE 5. QUIESCENT CURRENT VS. V_{IN}

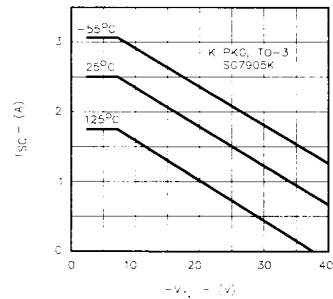


FIGURE 6. SHORT CIRCUIT CURRENT VS. V_{IN}

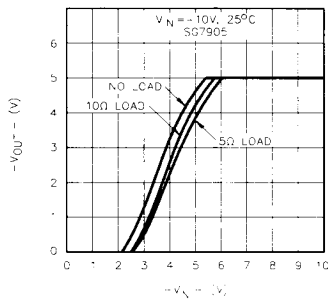


FIGURE 7. DROPOUT CHARACTERISTICS

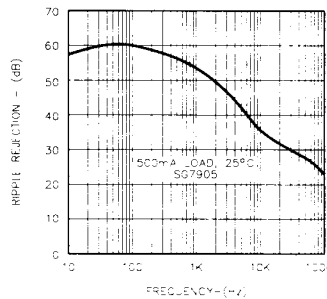


FIGURE 8. RIPPLE REJECTION VS. FREQUENCY

APPLICATIONS

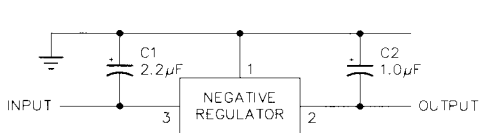


FIGURE 9 - FIXED OUTPUT REGULATOR

NOTE: 1. C1 is required only if regulator is separated from rectifier filter.

2. Both C1 and C2 should be low E.S.R. types such as solid tantalum. If aluminum electrolytics are used, at least 10 times values shown should be selected.

3. If large output capacities are used, the regulators must be protected from momentary input shorts. A high current diode

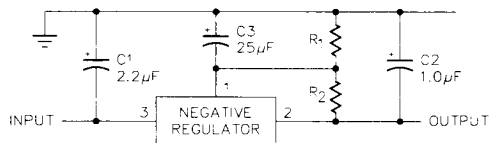


FIGURE 10 - CIRCUIT FOR INCREASING OUTPUT VOLTAGE

NOTE: C3 optional for improved transient response and ripple rejection.

$$V_{OUT} = V(\text{REGULATOR}) \frac{R_1 + R_2}{R_1} \quad R_2 = \frac{V(\text{REG})}{15\text{mA}}$$

ELECTRICAL SPECIFICATIONS (Note 1)

(Unless otherwise specified, these specifications apply over the operating ambient temperatures for SG7905A/SG7905 with $-55^{\circ}\text{C} \leq T_A \leq 150^{\circ}\text{C}$, SG7905AC/SG7905C with $0^{\circ}\text{C} \leq T_A \leq 125^{\circ}\text{C}$, $V_{IN} = -10\text{V}$, $I_O = 500\text{mA}$ for the K, R, G and IG - Power Packages; $I_O = 100\text{mA}$ for the T package, $C_{IN} = 2\mu\text{F}$, and $C_{OUT} = 1.0\mu\text{F}$. Low duty cycle pulse testing techniques are used which maintains junction and case temperatures equal to the ambient temperature.)

SG7905A/SG7905

Parameter	Test Conditions	SG7905A			SG7905			Units
		Min.	Typ.	Max.	Min.	Typ.	Max.	
Output Voltage	$T_J = 25^{\circ}\text{C}$	-4.92	-5.00	-5.08	-4.8	-5.0	-5.2	V
Line Regulation (Note 1)	$V_{IN} = -7.5\text{V to } -25\text{V}$, $T_J = 25^{\circ}\text{C}$		5	25		3	50	mV
	$V_{IN} = -8\text{V to } -12\text{V}$, $T_J = 25^{\circ}\text{C}$		3	12		1	25	mV
Load Regulation (Note 1)	Power Pkgs: $I_O = 5\text{mA to } 1.5\text{A}$, $T_J = 25^{\circ}\text{C}$		15	75		15	100	mV
	$I_O = 250\text{mA to } 750\text{mA}$, $T_J = 25^{\circ}\text{C}$		15	25		15	25	mV
	T - Pkg: $I_O = 5\text{mA to } 500\text{mA}$, $T_J = 25^{\circ}\text{C}$		5	30		5	100	mV
Total Output Voltage	$V_{IN} = -8\text{V to } -20\text{V}$							
Tolerance	Power Pkgs: $I_O = 5\text{mA to } 1.0\text{A}$, $P \leq 20\text{W}$	-4.85	-5.00	-5.15	-4.70	-5.00	-5.30	V
	T - Pkg: $I_O = 5\text{mA to } 500\text{mA}$, $P \leq 2\text{W}$	-4.85	-5.00	-5.15	-4.70	-5.00	-5.30	V
Quiescent Current	Over Temperature Range			2.5			2.5	mA
	$T_J = 25^{\circ}\text{C}$			2.0			2.0	mA
Quiescent Current Change	with Line: $V_{IN} = -8\text{V to } -25\text{V}$			1.3			1.3	mA
	with Load: $I_O = 5\text{mA to } 1.0\text{A}$ (Power Packages)			0.5			0.5	mA
	$I_O = 5\text{mA to } 500\text{mA}$ (T)			0.5			0.5	mA
Dropout Voltage	$\Delta V_O = 100\text{mV}$, $T_J = 25^{\circ}\text{C}$							
	Power Pkgs: $I_O = 1.0\text{A}$, T - Pkg: $I_O = 500\text{mA}$		1.1	2.3		1.1	2.3	V
Peak Output Current	Power Pkgs: $T_J = 25^{\circ}\text{C}$	1.5		3.3	1.5		3.3	A
	T - Pkg: $T_J = 25^{\circ}\text{C}$	0.5		1.4	0.5		1.4	A
Short Circuit Current	Power Pkgs: $V_{IN} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			1.2			1.2	A
	T - Pkg: $V_{IN} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			0.6			0.6	A
Ripple Rejection	$\Delta V_{IN} = 10\text{V}$, $f = 120\text{Hz}$, $T_J = 25^{\circ}\text{C}$	54			54			dB
Output Noise Voltage (rms)	$f = 10\text{Hz to } 100\text{kHz}$ (Note 2)		25	80		25	80	$\mu\text{V/V}$
Long Term Stability	1000hrs. at $T_J = 125^{\circ}\text{C}$		20			20		mV
Thermal Shutdown	$I_O = 5\text{mA}$		175			175		$^{\circ}\text{C}$

SG7905AC/SG7905C

Parameter	Test Conditions	SG7905AC			SG7905C			Units
		Min.	Typ.	Max.	Min.	Typ.	Max.	
Output Voltage	$T_J = 25^{\circ}\text{C}$	-4.92	-5.00	-5.08	-4.8	-5.0	-5.2	V
Line Regulation (Note 1)	$V_{IN} = -7.5\text{V to } -25\text{V}$, $T_J = 25^{\circ}\text{C}$		5	40		3	100	mV
	$V_{IN} = -8\text{V to } -12\text{V}$, $T_J = 25^{\circ}\text{C}$		3	25		1	50	mV
Load Regulation (Note 1)	Power Pkgs: $I_O = 5\text{mA to } 1.5\text{A}$, $T_J = 25^{\circ}\text{C}$		15	75		15	100	mV
	$I_O = 250\text{mA to } 750\text{mA}$, $T_J = 25^{\circ}\text{C}$		5	50		5	50	mV
	T - Pkg: $I_O = 5\text{mA to } 500\text{mA}$, $T_J = 25^{\circ}\text{C}$		5	50		15	100	mV
Total Output Voltage	$V_{IN} = -8\text{V to } -20\text{V}$							
Tolerance	Power Pkgs: $I_O = 5\text{mA to } 1.0\text{A}$, $P \leq 20\text{W}$	-4.85	-5.00	-5.15	-4.75	-5.00	-5.25	V
	T - Pkg: $I_O = 5\text{mA to } 500\text{mA}$, $P \leq 2\text{W}$	-4.85	-5.00	-5.15	-4.75	-5.00	-5.25	V
Quiescent Current	Over Temperature Range			2.5			3.0	mA
	$T_J = 25^{\circ}\text{C}$			2.0			2.0	mA
Quiescent Current Change	with Line: $V_{IN} = -8\text{V to } -25\text{V}$			1.3			1.3	mA
	with Load: $I_O = 5\text{mA to } 1.0\text{A}$ (Power Packages)			0.5			0.5	mA
	$I_O = 5\text{mA to } 500\text{mA}$ (T)			0.5			0.5	mA
Dropout Voltage	$\Delta V_O = 100\text{mV}$, $T_J = 25^{\circ}\text{C}$							
	Power Pkgs: $I_O = 1.0\text{A}$, T - Pkg: $I_O = 500\text{mA}$		1.1	2.3		1.1	2.3	V
Peak Output Current	Power Pkgs: $T_J = 25^{\circ}\text{C}$	1.5		3.3	1.5		3.3	A
	T - Pkg: $T_J = 25^{\circ}\text{C}$	0.5		1.4	0.5		1.4	A
Short Circuit Current	Power Pkgs: $V_{IN} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			1.2			1.2	A
	T - Pkg: $V_{IN} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			0.6			0.6	A
Ripple Rejection	$\Delta V_{IN} = 10\text{V}$, $f = 120\text{Hz}$, $T_J = 25^{\circ}\text{C}$	54			54			dB
Output Noise Voltage (rms)	$f = 10\text{Hz to } 100\text{kHz}$ (Note 2)		25	80		25	80	$\mu\text{V/V}$
Long Term Stability	1000hrs. at $T_J = 125^{\circ}\text{C}$		20			20		mV
Thermal Shutdown	$I_O = 5\text{mA}$		175			175		$^{\circ}\text{C}$

Note 1. All regulation tests are made at constant junction temperature with low duty cycle testing.

2. This test is guaranteed but is not tested in production.

ELECTRICAL SPECIFICATIONS (Note 1)

(Unless otherwise specified, these specifications apply over the operating ambient temperatures for SG7905.2A/7905.2 with $-55^{\circ}\text{C} \leq T_A \leq 150^{\circ}\text{C}$, SG7905.2AC/7905.2C with $0^{\circ}\text{C} \leq T_A \leq 125^{\circ}\text{C}$, $V_{\text{IN}} = -10\text{V}$, $I_O = 500\text{mA}$ for the K, R, G and IG -Power Packages-, $I_O = 100\text{mA}$ for the T package, $C_{\text{IN}} = 2\mu\text{F}$, and $C_{\text{OUT}} = 1.0\mu\text{F}$. Low duty cycle pulse testing techniques are used which maintains junction and case temperatures equal to the ambient temperature.)

SG7905.2A/SG7905.2

Parameter	Test Conditions	SG7905.2A			SG7905.2			Units
		Min.	Typ.	Max.	Min.	Typ.	Max.	
Output Voltage	$T_J = 25^{\circ}\text{C}$	-5.12	-5.20	-5.28	-5.0	-5.2	-5.4	V
Line Regulation (Note 1)	$V_{\text{IN}} = -7.7\text{V}$ to -25V , $T_J = 25^{\circ}\text{C}$		5	25		5	50	mV
	$V_{\text{IN}} = -8\text{V}$ to -12V , $T_J = 25^{\circ}\text{C}$		3	15		3	25	mV
Load Regulation (Note 1)	Power Pkgs: $I_O = 5\text{mA}$ to 1.5A , $T_J = 25^{\circ}\text{C}$		15	75		15	100	mV
	$I_O = 250\text{mA}$ to 750mA , $T_J = 25^{\circ}\text{C}$		5	25		5	30	mV
	T - Pkg: $I_O = 5\text{mA}$ to 500mA , $T_J = 25^{\circ}\text{C}$		5	30		5	100	mV
Total Output Voltage	$V_{\text{IN}} = -8.2\text{V}$ to -20V							
Tolerance	Power Pkgs: $I_O = 5\text{mA}$ to 1.0A , $P \leq 20\text{W}$	-5.05	-5.20	-5.35	-4.90	-5.20	-5.50	V
	T - Pkg: $I_O = 5\text{mA}$ to 500mA , $P \leq 2\text{W}$	-5.05	-5.20	-5.35	-4.90	-5.20	-5.50	V
Quiescent Current	Over Temperature Range			2.5			2.5	mA
	$T_J = 25^{\circ}\text{C}$			2.0			2.0	mA
Quiescent Current Change	with Line: $V_{\text{IN}} = -8.2\text{V}$ to -25V			1.3			1.3	mA
	with Load: $I_O = 5\text{mA}$ to 1.0A (Power Packages)			0.5			0.5	mA
	$I_O = 5\text{mA}$ to 500mA (T)			0.5			0.5	mA
Dropout Voltage	$\Delta V_O = 100\text{mV}$, $T_J = 25^{\circ}\text{C}$							
	Power Pkgs: $I_O = 1.0\text{A}$, T - Pkg: $I_O = 500\text{mA}$		1.1	2.3		1.1	2.3	V
Peak Output Current	Power Pkgs: $T_J = 25^{\circ}\text{C}$	1.5		3.3	1.5		3.3	A
	T - Pkg: $T_J = 25^{\circ}\text{C}$	0.5		1.4	0.5		1.4	A
Short Circuit Current	Power Pkgs: $V_{\text{IN}} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			1.2			1.2	A
	T - Pkg: $V_{\text{IN}} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			0.6			0.6	A
Ripple Rejection	$\Delta V_{\text{IN}} = 10\text{V}$, $f = 120\text{Hz}$, $T_J = 25^{\circ}\text{C}$	54			54			dB
Output Noise Voltage (rms)	$f = 10\text{Hz}$ to 100KHz (Note 2)		25	80		25	80	$\mu\text{V/V}$
Long Term Stability	1000hrs. at $T_J = 125^{\circ}\text{C}$		24			24		mV
Thermal Shutdown	$I_O = 5\text{mA}$		175			175		$^{\circ}\text{C}$

SG7905.2AC/SG7905.2C

Parameter	Test Conditions	SG7905.2AC			SG7905.2C			Units
		Min.	Typ.	Max.	Min.	Typ.	Max.	
Output Voltage	$T_J = 25^{\circ}\text{C}$	-5.12	-5.20	-5.28	-5.0	-5.2	-5.4	V
Line Regulation (Note 1)	$V_{\text{IN}} = -7.7\text{V}$ to -25V , $T_J = 25^{\circ}\text{C}$		5	40		10	50	mV
	$V_{\text{IN}} = -8\text{V}$ to -12V , $T_J = 25^{\circ}\text{C}$		3	25		5	25	mV
Load Regulation (Note 1)	Power Pkgs: $I_O = 5\text{mA}$ to 1.5A , $T_J = 25^{\circ}\text{C}$		15	75		15	100	mV
	$I_O = 250\text{mA}$ to 750mA , $T_J = 25^{\circ}\text{C}$		5	50		5	50	mV
	T - Pkg: $I_O = 5\text{mA}$ to 500mA , $T_J = 25^{\circ}\text{C}$		5	50		5	100	mV
Total Output Voltage	$V_{\text{IN}} = -8.2\text{V}$ to -20V							
Tolerance	Power Pkgs: $I_O = 5\text{mA}$ to 1.0A , $P \leq 20\text{W}$	-5.05	-5.20	-5.35	-4.95	-5.20	-5.45	V
	T - Pkg: $I_O = 5\text{mA}$ to 500mA , $P \leq 2\text{W}$	-5.05	-5.20	-5.35	-4.95	-5.20	-5.45	V
Quiescent Current	Over Temperature Range			2.5			3.1	mA
	$T_J = 25^{\circ}\text{C}$			2.0			2.0	mA
Quiescent Current Change	with Line: $V_{\text{IN}} = -8.2\text{V}$ to -20V			1.3			1.3	mA
	with Load: $I_O = 5\text{mA}$ to 1.0A (Power Packages)			0.5			0.5	mA
	$I_O = 5\text{mA}$ to 500mA (T)			0.5			0.5	mA
Dropout Voltage	$\Delta V_O = 100\text{mV}$, $T_J = 25^{\circ}\text{C}$							
	Power Pkgs: $I_O = 1.0\text{A}$, T - Pkg: $I_O = 500\text{mA}$		1.1	2.3		1.1	2.3	V
Peak Output Current	Power Pkgs: $T_J = 25^{\circ}\text{C}$	1.5		3.3	1.5		3.3	A
	T - Pkg: $T_J = 25^{\circ}\text{C}$	0.5		1.4	0.5		1.4	A
Short Circuit Current	Power Pkgs: $V_{\text{IN}} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			1.2			1.2	A
	T - Pkg: $V_{\text{IN}} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			0.6			0.6	A
Ripple Rejection	$\Delta V_{\text{IN}} = 10\text{V}$, $f = 120\text{Hz}$, $T_J = 25^{\circ}\text{C}$	54			54			dB
Output Noise Voltage (rms)	$f = 10\text{Hz}$ to 100KHz (Note 2)		25	80		25	80	$\mu\text{V/V}$
Long Term Stability	1000hrs. at $T_J = 125^{\circ}\text{C}$		24			24		mV
Thermal Shutdown	$I_O = 5\text{mA}$		175			175		$^{\circ}\text{C}$

Note 1. All regulation tests are made at constant junction temperature with low duty cycle testing.

2. This test is guaranteed but is not tested in production.

ELECTRICAL SPECIFICATIONS (Note 1)

(Unless otherwise specified, these specifications apply over the operating ambient temperatures for SG7908A/SG7908 with $-55^{\circ}\text{C} \leq T_A \leq 150^{\circ}\text{C}$, SG7908AC/SG7908C with $0^{\circ}\text{C} \leq T_A \leq 125^{\circ}\text{C}$, $V_{IN} = -14\text{V}$, $I_O = 500\text{mA}$ for the K, R, G and IG -Power Packages-, $I_O = 100\text{mA}$ for the T package, $C_N = 2\mu\text{F}$, and $C_{OUT} = 1.0\mu\text{F}$. Low duty cycle pulse testing techniques are used which maintains junction and case temperatures equal to the ambient temperature.)

SG7908A/SG7908

Parameter	Test Conditions	SG7908A			SG7908			Units
		Min.	Typ.	Max.	Min.	Typ.	Max.	
Output Voltage	$T_J = 25^{\circ}\text{C}$	-7.88	-8.00	-8.12	-7.7	-8.0	-8.3	V
Line Regulation (Note 1)	$V_{IN} = -10.5\text{V to } -25\text{V}$, $T_J = 25^{\circ}\text{C}$		6	40		6	80	mV
	$V_{IN} = -11\text{V to } -17\text{V}$, $T_J = 25^{\circ}\text{C}$		2	20		2	40	mV
Load Regulation (Note 1)	Power Pkgs: $I_O = 5\text{mA to } 1.5\text{A}$, $T_J = 25^{\circ}\text{C}$		12	80		12	100	mV
	$I_O = 250\text{mA to } 750\text{mA}$, $T_J = 25^{\circ}\text{C}$		4	30		4	40	mV
	T - Pkg: $I_O = 5\text{mA to } 500\text{mA}$, $T_J = 25^{\circ}\text{C}$		10	30		10	160	mV
Total Output Voltage Tolerance	$V_{IN} = -11.5\text{V to } -23\text{V}$							
	Power Pkgs: $I_O = 5\text{mA to } 1.0\text{A}$, $P \leq 20\text{W}$	-7.76	-8.00	-8.24	-7.6	-8.0	-8.4	V
	T - Pkg: $I_O = 5\text{mA to } 500\text{mA}$, $P \leq 2\text{W}$	-7.76	-8.00	-8.24	-7.6	-8.0	-8.4	V
Quiescent Current	Over Temperature Range			2.5			2.5	mA
	$T_J = 25^{\circ}\text{C}$			2.0			2.0	mA
Quiescent Current Change	with Line: $V_{IN} = -11.5\text{V to } -25\text{V}$			1.0			1.0	mA
	with Load: $I_O = 5\text{mA to } 1.0\text{A}$ (Power Packages)			0.5			0.5	mA
	$I_O = 5\text{mA to } 500\text{mA}$ (T)			0.5			0.5	mA
Dropout Voltage	$\Delta V_O = 100\text{mV}$, $T_J = 25^{\circ}\text{C}$							
	Power Pkgs: $I_O = 1.0\text{A}$, T - Pkg: $I_O = 500\text{mA}$		1.1	2.3		1.1	2.3	V
Peak Output Current	Power Pkgs: $T_J = 25^{\circ}\text{C}$	1.5		3.3	1.5		3.3	A
	T - Pkg: $T_J = 25^{\circ}\text{C}$	0.5		1.4	0.5		1.4	A
Short Circuit Current	Power Pkgs: $V_{IN} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			1.2			1.2	A
	T - Pkg: $V_{IN} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			0.6			0.6	A
Ripple Rejection	$\Delta V_{IN} = 10\text{V}$, $f = 120\text{Hz}$, $T_J = 25^{\circ}\text{C}$	54			54			dB
Output Noise Voltage (rms)	$f = 10\text{Hz to } 100\text{kHz}$ (Note 2)		25	80		25	80	$\mu\text{V/V}$
Long Term Stability	1000hrs. at $T_J = 125^{\circ}\text{C}$		32			32		mV
Thermal Shutdown	$I_O = 5\text{mA}$		175			175		$^{\circ}\text{C}$

SG7908AC/SG7908C

Parameter	Test Conditions	SG7908AC			SG7908C			Units
		Min.	Typ.	Max.	Min.	Typ.	Max.	
Output Voltage	$T_J = 25^{\circ}\text{C}$	-7.88	-8.00	-8.12	-7.7	-8.0	-8.3	V
Line Regulation (Note 1)	$V_{IN} = -10.5\text{V to } -25\text{V}$, $T_J = 25^{\circ}\text{C}$		6	40		6	160	mV
	$V_{IN} = -11\text{V to } -17\text{V}$, $T_J = 25^{\circ}\text{C}$		4	25		2	80	mV
Load Regulation (Note 1)	Power Pkgs: $I_O = 5\text{mA to } 1.5\text{A}$, $T_J = 25^{\circ}\text{C}$		12	100		12	160	mV
	$I_O = 250\text{mA to } 750\text{mA}$, $T_J = 25^{\circ}\text{C}$		10	50		4	80	mV
	T - Pkg: $I_O = 5\text{mA to } 500\text{mA}$, $T_J = 25^{\circ}\text{C}$		10	40		10	160	mV
Total Output Voltage Tolerance	$V_{IN} = -11.5\text{V to } -23\text{V}$							
	Power Pkgs: $I_O = 5\text{mA to } 1.0\text{A}$, $P \leq 20\text{W}$	-7.76	-8.00	-8.24	-7.6	-8.0	-8.4	V
	T - Pkg: $I_O = 5\text{mA to } 500\text{mA}$, $P \leq 2\text{W}$	-7.76	-8.00	-8.24	-7.6	-8.0	-8.4	V
Quiescent Current	Over Temperature Range			2.5			3.0	mA
	$T_J = 25^{\circ}\text{C}$			2.0			2.0	mA
Quiescent Current Change	with Line: $V_{IN} = -11.5\text{V to } -25\text{V}$			1.0			1.0	mA
	with Load: $I_O = 5\text{mA to } 1.0\text{A}$ (Power Packages)			0.5			0.5	mA
	$I_O = 5\text{mA to } 500\text{mA}$ (T)			0.5			0.5	mA
Dropout Voltage	$\Delta V_O = 100\text{mV}$, $T_J = 25^{\circ}\text{C}$							
	Power Pkgs: $I_O = 1.0\text{A}$, T - Pkg: $I_O = 500\text{mA}$		1.1	2.3		1.1	2.3	V
Peak Output Current	Power Pkgs: $T_J = 25^{\circ}\text{C}$	1.5		3.3	1.5		3.3	A
	T - Pkg: $T_J = 25^{\circ}\text{C}$	0.5		1.4	0.5		1.4	A
Short Circuit Current	Power Pkgs: $V_{IN} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			1.2			1.2	A
	T - Pkg: $V_{IN} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			0.6			0.6	A
Ripple Rejection	$\Delta V_{IN} = 10\text{V}$, $f = 120\text{Hz}$, $T_J = 25^{\circ}\text{C}$	54			54			dB
Output Noise Voltage (rms)	$f = 10\text{Hz to } 100\text{kHz}$ (Note 2)		25	80		25	80	$\mu\text{V/V}$
Long Term Stability	1000hrs. at $T_J = 125^{\circ}\text{C}$		32			32		mV
Thermal Shutdown	$I_O = 5\text{mA}$		175			175		$^{\circ}\text{C}$

Note 1. All regulation tests are made at constant junction temperature with low duty cycle testing.

2. This test is guaranteed but is not tested in production.

ELECTRICAL SPECIFICATIONS (Note 1)

(Unless otherwise specified, these specifications apply over the operating ambient temperatures for SG7912A/SG7912 with $-55^{\circ}\text{C} \leq T_A \leq 150^{\circ}\text{C}$, SG7912AC/SG7912C with $0^{\circ}\text{C} \leq T_A \leq 125^{\circ}\text{C}$, $V_{IN} = -19\text{V}$, $I_O = 500\text{mA}$ for the K, R, G and IG -Power Packages-, $I_O = 100\text{mA}$ for the T package, $C_{IN} = 2\mu\text{F}$, and $C_{OUT} = 1.0\mu\text{F}$. Low duty cycle pulse testing techniques are used which maintains junction and case temperatures equal to the ambient temperature.)

SG7912A/SG7912

Parameter	Test Conditions	SG7912A			SG7912			Units
		Min.	Typ.	Max.	Min.	Typ.	Max.	
Output Voltage	$T_J = 25^{\circ}\text{C}$	-11.8	-12.0	-12.2	-11.5	-12.0	-12.5	V
Line Regulation (Note 1)	$V_{IN} = -14.5\text{V to } -30\text{V}$, $T_J = 25^{\circ}\text{C}$		4	60		10	120	mV
	$V_{IN} = -16\text{V to } -22\text{V}$, $T_J = 25^{\circ}\text{C}$		3	30		3	60	mV
Load Regulation (Note 1)	Power Pkgs: $I_O = 5\text{mA to } 1.5\text{A}$, $T_J = 25^{\circ}\text{C}$		20	90		12	120	mV
	$I_O = 250\text{mA to } 750\text{mA}$, $T_J = 25^{\circ}\text{C}$		10	40		4	60	mV
	T - Pkg: $I_O = 5\text{mA to } 500\text{mA}$, $T_J = 25^{\circ}\text{C}$		10	40		10	240	mV
Total Output Voltage	$V_{IN} = -14.5\text{V to } -27\text{V}$							
Tolerance	Power Pkgs: $I_O = 5\text{mA to } 1.0\text{A}$, $P \leq 20\text{W}$	-11.7	-12.0	-12.3	-11.4	-12.0	-12.6	V
	T - Pkg: $I_O = 5\text{mA to } 500\text{mA}$, $P \leq 2\text{W}$	-11.7	-12.0	-12.3	-11.4	-12.0	-12.6	V
Quiescent Current	Over Temperature Range		4			4		mA
	$T_J = 25^{\circ}\text{C}$		3			3		mA
Quiescent Current Change	with Line: $V_{IN} = -14.5\text{V to } -30\text{V}$		1.0			1.0		mA
	with Load: $I_O = 5\text{mA to } 1.0\text{A}$ (Power Packages)		0.5			0.5		mA
	$I_O = 5\text{mA to } 500\text{mA}$ (T)		0.5			0.5		mA
Dropout Voltage	$\Delta V_O = 100\text{mV}$, $T_J = 25^{\circ}\text{C}$							
	Power Pkgs: $I_O = 1.0\text{A}$, T - Pkg: $I_O = 500\text{mA}$		1.1	2.3		1.1	2.3	V
Peak Output Current	Power Pkgs: $T_J = 25^{\circ}\text{C}$	1.5		3.3	1.5		3.3	A
	T - Pkg: $T_J = 25^{\circ}\text{C}$	0.5		1.4	0.5		1.4	A
Short Circuit Current	Power Pkgs: $V_{IN} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			1.2			0.2	A
	T - Pkg: $V_{IN} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			0.6			0.6	A
Ripple Rejection	$\Delta V_{IN} = 10\text{V}$, $f = 120\text{Hz}$, $T_J = 25^{\circ}\text{C}$	54			54			dB
Output Noise Voltage (rms)	$f = 10\text{Hz to } 100\text{kHz}$ (Note 2)		25	80		25	80	$\mu\text{V/V}$
Long Term Stability	1000hrs. at $T_J = 125^{\circ}\text{C}$		60			60		mV
Thermal Shutdown	$I_O = 5\text{mA}$		175			175		$^{\circ}\text{C}$

SG7912AC/SG7912C

Parameter	Test Conditions	SG7912AC			SG7912C			Units
		Min.	Typ.	Max.	Min.	Typ.	Max.	
Output Voltage	$T_J = 25^{\circ}\text{C}$	-11.8	-12.0	-12.2	-11.5	-12.0	-12.5	V
Line Regulation (Note 1)	$V_{IN} = -14.5\text{V to } -30\text{V}$, $T_J = 25^{\circ}\text{C}$		4	70		10	240	mV
	$V_{IN} = -16\text{V to } -22\text{V}$, $T_J = 25^{\circ}\text{C}$		3	40		3	120	mV
Load Regulation (Note 1)	Power Pkgs: $I_O = 5\text{mA to } 1.5\text{A}$, $T_J = 25^{\circ}\text{C}$		20	100		12	240	mV
	$I_O = 250\text{mA to } 750\text{mA}$, $T_J = 25^{\circ}\text{C}$		10	50		4	120	mV
	T - Pkg: $I_O = 5\text{mA to } 500\text{mA}$, $T_J = 25^{\circ}\text{C}$		10	50		10	240	mV
Total Output Voltage	$V_{IN} = -14.5\text{V to } -27\text{V}$							
Tolerance	Power Pkgs: $I_O = 5\text{mA to } 1.0\text{A}$, $P \leq 20\text{W}$	-11.7	-12.0	-12.3	-11.4	-12.0	-12.6	V
	T - Pkg: $I_O = 5\text{mA to } 500\text{mA}$, $P \leq 2\text{W}$	-11.7	-12.0	-12.3	-11.4	-12.0	-12.6	V
Quiescent Current	Over Temperature Range		4			4		mA
	$T_J = 25^{\circ}\text{C}$		3			3		mA
Quiescent Current Change	with Line: $V_{IN} = -14.5\text{V to } -30\text{V}$		1.0			1.0		mA
	with Load: $I_O = 5\text{mA to } 1.0\text{A}$ (Power Packages)		0.5			0.5		mA
	$I_O = 5\text{mA to } 500\text{mA}$ (T)		0.5			0.5		mA
Dropout Voltage	$\Delta V_O = 100\text{mV}$, $T_J = 25^{\circ}\text{C}$							
	Power Pkgs: $I_O = 1.0\text{A}$, T - Pkg: $I_O = 500\text{mA}$		1.1	2.3		1.1	2.3	V
Peak Output Current	Power Pkgs: $T_J = 25^{\circ}\text{C}$	1.5		3.3	1.5		3.3	A
	T - Pkg: $T_J = 25^{\circ}\text{C}$	0.5		1.4	0.5		1.4	A
Short Circuit Current	Power Pkgs: $V_{IN} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			1.2			1.2	A
	T - Pkg: $V_{IN} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			0.6			0.6	A
Ripple Rejection	$\Delta V_{IN} = 10\text{V}$, $f = 120\text{Hz}$, $T_J = 25^{\circ}\text{C}$	54			54			dB
Output Noise Voltage (rms)	$f = 10\text{Hz to } 100\text{kHz}$ (Note 2)		25	80		25	80	$\mu\text{V/V}$
Long Term Stability	1000hrs. at $T_J = 125^{\circ}\text{C}$		60			60		mV
Thermal Shutdown	$I_O = 5\text{mA}$		175			175		$^{\circ}\text{C}$

Note 1. All regulation tests are made at constant junction temperature with low duty cycle testing.

2. This test is guaranteed but is not tested in production.

ELECTRICAL SPECIFICATIONS (Note 1)

(Unless otherwise specified, these specifications apply over the operating ambient temperatures for SG7915A/SG7915 with $-55^{\circ}\text{C} \leq T_A \leq 150^{\circ}\text{C}$, SG7915AC/SG7915C with $0^{\circ}\text{C} \leq T_A \leq 125^{\circ}\text{C}$, $V_{IN} = -23\text{V}$, $I_O = 500\text{mA}$ for the K, R, G and IG -Power Packages-, $I_O = 100\text{mA}$ for the T package, $C_{IN} = 2\mu\text{F}$, and $C_{OUT} = 1.0\mu\text{F}$. Low duty cycle pulse testing techniques are used which maintains junction and case temperatures equal to the ambient temperature.)

SG7915A/SG7915

Parameter	Test Conditions	SG7915A			SG7915			Units
		Min.	Typ.	Max.	Min.	Typ.	Max.	
Output Voltage	$T_J = 25^{\circ}\text{C}$	-14.8	-15.0	-15.2	-14.4	-15.0	-15.6	V
Line Regulation (Note 1)	$V_{IN} = -17.5\text{V}$ to -30V , $T_J = 25^{\circ}\text{C}$		5	75		11	150	mV
	$V_{IN} = -20\text{V}$ to -25V , $T_J = 25^{\circ}\text{C}$		3	40		3	75	mV
Load Regulation (Note 1)	Power Pkgs: $I_O = 5\text{mA}$ to 1.5A , $T_J = 25^{\circ}\text{C}$		30	100		12	150	mV
	$I_O = 250\text{mA}$ to 750mA , $T_J = 25^{\circ}\text{C}$		4	50		4	75	mV
	T - Pkg: $I_O = 5\text{mA}$ to 500mA , $T_J = 25^{\circ}\text{C}$		10	50		10	240	mV
Total Output Voltage	$V_{IN} = -18.5\text{V}$ to -30V							
Tolerance	Power Pkgs: $I_O = 5\text{mA}$ to 1.0A , $P \leq 20\text{W}$	-14.6	-15.0	-15.4	-14.25	-15.00	-15.75	V
	T - Pkg: $I_O = 5\text{mA}$ to 500mA , $P \leq 2\text{W}$	-14.6	-15.0	-15.4	-14.25	-15.00	-15.75	V
Quiescent Current	Over Temperature Range			4			4	mA
	$T_J = 25^{\circ}\text{C}$			3			3	mA
Quiescent Current Change	with Line: $V_{IN} = -18.5\text{V}$ to -30V			1.0			1.0	mA
	with Load: $I_O = 5\text{mA}$ to 1.0A (Power Packages)			0.5			0.5	mA
	$I_O = 5\text{mA}$ to 500mA (T)			0.5			0.5	mA
Dropout Voltage	$\Delta V_O = 100\text{mV}$, $T_J = 25^{\circ}\text{C}$							
	Power Pkgs: $I_O = 1.0\text{A}$, T - Pkg: $I_O = 500\text{mA}$		1.1	2.3		1.1	2.3	V
Peak Output Current	Power Pkgs: $T_J = 25^{\circ}\text{C}$	1.5		3.3	1.5		3.3	A
	T - Pkg: $T_J = 25^{\circ}\text{C}$	0.5		1.4	0.5		1.4	A
Short Circuit Current	Power Pkgs: $V_{IN} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			1.2			1.2	A
	T - Pkg: $V_{IN} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			0.6			0.6	A
Ripple Rejection	$\Delta V_{IN} = 10\text{V}$, $f = 120\text{Hz}$, $T_J = 25^{\circ}\text{C}$	54			54			dB
Output Noise Voltage (rms)	$f = 10\text{Hz}$ to 100KHz (Note 2)		25	80		25	80	$\mu\text{V/V}$
Long Term Stability	1000hrs. at $T_J = 125^{\circ}\text{C}$		60			60		mV
Thermal Shutdown	$I_O = 5\text{mA}$		175			175		$^{\circ}\text{C}$

SG7915AC/SG7915C

Parameter	Test Conditions	SG7915AC			SG7915C			Units
		Min.	Typ.	Max.	Min.	Typ.	Max.	
Output Voltage	$T_J = 25^{\circ}\text{C}$	-14.8	-15.0	-15.2	-14.4	-15.0	-15.6	V
Line Regulation (Note 1)	$V_{IN} = -17.5\text{V}$ to -30V , $T_J = 25^{\circ}\text{C}$		5	90		12	300	mV
	$V_{IN} = -20\text{V}$ to -25V , $T_J = 25^{\circ}\text{C}$		4	50		3	150	mV
Load Regulation (Note 1)	Power Pkgs: $I_O = 5\text{mA}$ to 1.5A , $T_J = 25^{\circ}\text{C}$		30	130		12	300	mV
	$I_O = 250\text{mA}$ to 750mA , $T_J = 25^{\circ}\text{C}$		4	60		4	150	mV
	T - Pkg: $I_O = 5\text{mA}$ to 500mA , $T_J = 25^{\circ}\text{C}$		10	60		10	240	mV
Total Output Voltage	$V_{IN} = -18.5\text{V}$ to -30V							
Tolerance	Power Pkgs: $I_O = 5\text{mA}$ to 1.0A , $P \leq 20\text{W}$	-14.6	-15.0	-15.4	-14.25	-15.00	-15.75	V
	T - Pkg: $I_O = 5\text{mA}$ to 500mA , $P \leq 2\text{W}$	-14.6	-15.0	-15.4	-14.25	-15.00	-15.75	V
Quiescent Current	Over Temperature Range			4			4	mA
	$T_J = 25^{\circ}\text{C}$			3			3	mA
Quiescent Current Change	with Line: $V_{IN} = -18.5\text{V}$ to -30V			1.0			1.0	mA
	with Load: $I_O = 5\text{mA}$ to 1.0A (Power Packages)			0.5			0.5	mA
	$I_O = 5\text{mA}$ to 500mA (T)			0.5			0.5	mA
Dropout Voltage	$\Delta V_O = 100\text{mV}$, $T_J = 25^{\circ}\text{C}$							
	Power Pkgs: $I_O = 1.0\text{A}$, T - Pkg: $I_O = 500\text{mA}$		1.1	2.3		1.1	2.3	V
Peak Output Current	Power Pkgs: $T_J = 25^{\circ}\text{C}$	1.5		3.3	1.5		3.3	A
	T - Pkg: $T_J = 25^{\circ}\text{C}$	0.5		1.4	0.5		1.4	A
Short Circuit Current	Power Pkgs: $V_{IN} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			1.2			1.2	A
	T - Pkg: $V_{IN} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			0.6			0.6	A
Ripple Rejection	$\Delta V_{IN} = 10\text{V}$, $f = 120\text{Hz}$, $T_J = 25^{\circ}\text{C}$	54			54			dB
Output Noise Voltage (rms)	$f = 10\text{Hz}$ to 100KHz (Note 2)		25	80		25	80	$\mu\text{V/V}$
Long Term Stability	1000hrs. at $T_J = 125^{\circ}\text{C}$		60			60		mV
Thermal Shutdown	$I_O = 5\text{mA}$		175			175		$^{\circ}\text{C}$

Note 1. All regulation tests are made at constant junction temperature with low duty cycle testing.

2. This test is guaranteed but is not tested in production.

ELECTRICAL SPECIFICATIONS (Note 1)

(Unless otherwise specified, these specifications apply over the operating ambient temperatures for SG7918A/SG7918 with $-55^{\circ}\text{C} \leq T_A \leq 150^{\circ}\text{C}$, SG7918AC/SG7918C with $0^{\circ}\text{C} \leq T_A \leq 125^{\circ}\text{C}$, $V_{IN} = -27\text{V}$, $I_O = 500\text{mA}$ for the K, R, G and IG -Power Packages-, $I_O = 100\text{mA}$ for the T package, $C_{IN} = 2\mu\text{F}$, and $C_{OUT} = 1.0\mu\text{F}$. Low duty cycle pulse testing techniques are used which maintains junction and case temperatures equal to the ambient temperature.)

SG7918A/SG7918

Parameter	Test Conditions	SG7918A			SG7918			Units
		Min.	Typ.	Max.	Min.	Typ.	Max.	
Output Voltage	$T_J = 25^{\circ}\text{C}$	-17.7	-18.0	-18.3	-17.3	-18.0	-18.7	V
Line Regulation (Note 1)	$V_{IN} = -21\text{V to } -33\text{V}$, $T_J = 25^{\circ}\text{C}$		5	90		6	180	mV
	$V_{IN} = -24\text{V to } -30\text{V}$, $T_J = 25^{\circ}\text{C}$		3	50		3	75	mV
Load Regulation (Note 1)	Power Pkgs: $I_O = 5\text{mA to } 1.5\text{A}$, $T_J = 25^{\circ}\text{C}$		30	120		12	180	mV
	$I_O = 250\text{mA to } 750\text{mA}$, $T_J = 25^{\circ}\text{C}$		4	60		4	90	mV
	T - Pkg: $I_O = 5\text{mA to } 500\text{mA}$, $T_J = 25^{\circ}\text{C}$		10	60		10	240	mV
Total Output Voltage	$V_{IN} = -22\text{V to } -33\text{V}$							
Tolerance	Power Pkgs: $I_O = 5\text{mA to } 1.0\text{A}$, $P \leq 20\text{W}$	-17.5	-18.0	-18.5	-17.1	-18.0	-18.9	V
	T - Pkg: $I_O = 5\text{mA to } 500\text{mA}$, $P \leq 2\text{W}$	-17.5	-18.0	-18.5	-17.1	-18.0	-18.9	V
Quiescent Current	Over Temperature Range			4			4	mA
	$T_J = 25^{\circ}\text{C}$			3			3	mA
Quiescent Current Change	with Line: $V_{IN} = -21\text{V to } -33\text{V}$			1.0			1.0	mA
	with Load: $I_O = 5\text{mA to } 1.0\text{A}$ (Power Packages)			0.5			0.5	mA
	$I_O = 5\text{mA to } 500\text{mA}$ (T)			0.5			0.5	mA
Dropout Voltage	$\Delta V_O = 100\text{mV}$, $T_J = 25^{\circ}\text{C}$							
	Power Pkgs: $I_O = 1.0\text{A}$, T - Pkg: $I_O = 500\text{mA}$		1.1	2.3		1.1	2.3	V
Peak Output Current	Power Pkgs: $T_J = 25^{\circ}\text{C}$	1.5		3.3	1.5		3.3	A
	T - Pkg: $T_J = 25^{\circ}\text{C}$	0.5		1.4	0.5		1.4	A
Short Circuit Current	Power Pkgs: $V_{IN} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			1.2			1.2	A
	T - Pkg: $V_{IN} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			0.6			0.6	A
Ripple Rejection	$\Delta V_{IN} = 10\text{V}$, $f = 120\text{Hz}$, $T_J = 25^{\circ}\text{C}$	54			54			dB
Output Noise Voltage (rms)	$f = 10\text{Hz to } 100\text{kHz}$ (Note 2)		25	80		25	80	$\mu\text{V/V}$
Long Term Stability	1000hrs. at $T_J = 125^{\circ}\text{C}$		72			72		mV
Thermal Shutdown	$I_O = 5\text{mA}$		175			175		$^{\circ}\text{C}$

SG7918AC/SG7918C

Parameter	Test Conditions	SG7918AC			SG7918C			Units
		Min.	Typ.	Max.	Min.	Typ.	Max.	
Output Voltage	$T_J = 25^{\circ}\text{C}$	-17.7	-18.0	-18.3	-17.4	-18.0	-18.6	V
Line Regulation (Note 1)	$V_{IN} = -21\text{V to } -33\text{V}$, $T_J = 25^{\circ}\text{C}$		5	100		12	300	mV
	$V_{IN} = -24\text{V to } -30\text{V}$, $T_J = 25^{\circ}\text{C}$		4	60		3	150	mV
Load Regulation (Note 1)	Power Pkgs: $I_O = 5\text{mA to } 1.5\text{A}$, $T_J = 25^{\circ}\text{C}$		30	130		12	360	mV
	$I_O = 250\text{mA to } 750\text{mA}$, $T_J = 25^{\circ}\text{C}$		4	70		4	180	mV
	T - Pkg: $I_O = 5\text{mA to } 500\text{mA}$, $T_J = 25^{\circ}\text{C}$		10	70		10	300	mV
Total Output Voltage	$V_{IN} = -22\text{V to } -33\text{V}$							
Tolerance	Power Pkgs: $I_O = 5\text{mA to } 1.0\text{A}$, $P \leq 20\text{W}$	-17.5	-18.0	-18.5	-17.1	-18.0	-18.9	V
	T - Pkg: $I_O = 5\text{mA to } 500\text{mA}$, $P \leq 2\text{W}$	-17.5	-18.0	-18.5	-17.1	-18.0	-18.9	V
Quiescent Current	Over Temperature Range			4			4	mA
	$T_J = 25^{\circ}\text{C}$			3			3	mA
Quiescent Current Change	with Line: $V_{IN} = -21\text{V to } -33\text{V}$			1.0			1.0	mA
	with Load: $I_O = 5\text{mA to } 1.0\text{A}$ (Power Packages)			0.5			0.5	mA
	$I_O = 5\text{mA to } 500\text{mA}$ (T)			0.5			0.5	mA
Dropout Voltage	$\Delta V_O = 100\text{mV}$, $T_J = 25^{\circ}\text{C}$							
	Power Pkgs: $I_O = 1.0\text{A}$, T - Pkg: $I_O = 500\text{mA}$		1.1	2.3		1.1	2.3	V
Peak Output Current	Power Pkgs: $T_J = 25^{\circ}\text{C}$	1.5		3.3	1.5		3.3	A
	T - Pkg: $T_J = 25^{\circ}\text{C}$	0.5		1.4	0.5		1.4	A
Short Circuit Current	Power Pkgs: $V_{IN} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			1.2			1.2	A
	T - Pkg: $V_{IN} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			0.6			0.6	A
Ripple Rejection	$\Delta V_{IN} = 10\text{V}$, $f = 120\text{Hz}$, $T_J = 25^{\circ}\text{C}$	54			54			dB
Output Noise Voltage (rms)	$f = 10\text{Hz to } 100\text{kHz}$ (Note 2)		25	80		25	80	$\mu\text{V/V}$
Long Term Stability	1000hrs. at $T_J = 125^{\circ}\text{C}$		72			72		mV
Thermal Shutdown	$I_O = 5\text{mA}$		175			175		$^{\circ}\text{C}$

Note 1. All regulation tests are made at constant junction temperature with low duty cycle testing.

2. This test is guaranteed but is not tested in production.

ELECTRICAL SPECIFICATIONS (Note 1)

(Unless otherwise specified, these specifications apply over the operating ambient temperatures for SG7920A/SG7920 with $-55^{\circ}\text{C} \leq T_A \leq 150^{\circ}\text{C}$, SG7920AC/SG7920C with $0^{\circ}\text{C} \leq T_A \leq 125^{\circ}\text{C}$, $V_{\text{IN}} = -29\text{V}$, $I_O = 500\text{mA}$ for the K, R, G and IG -Power Packages-, $I_O = 100\text{mA}$ for the T package, $C_{\text{IN}} = 2\mu\text{F}$, and $C_{\text{OUT}} = 1.0\mu\text{F}$. Low duty cycle pulse testing techniques are used which maintains junction and case temperatures equal to the ambient temperature.)

SG7920A/SG7920

Parameter	Test Conditions	SG7920A			SG7920			Units
		Min.	Typ.	Max.	Min.	Typ.	Max.	
Output Voltage	$T_J = 25^{\circ}\text{C}$	-19.7	-20.0	-20.3	-19.2	-20.0	-20.8	V
Line Regulation (Note 1)	$V_{\text{IN}} = -23\text{V}$ to -35V , $T_J = 25^{\circ}\text{C}$		5	100		11	150	mV
	$V_{\text{IN}} = -26\text{V}$ to -32V , $T_J = 25^{\circ}\text{C}$		4	60		3	75	mV
Load Regulation (Note 1)	Power Pkgs: $I_O = 5\text{mA}$ to 1.5A , $T_J = 25^{\circ}\text{C}$		30	120		12	200	mV
	$I_O = 250\text{mA}$ to 750mA , $T_J = 25^{\circ}\text{C}$		4	70		4	100	mV
	T - Pkg: $I_O = 5\text{mA}$ to 500mA , $T_J = 25^{\circ}\text{C}$		10	70		10	240	mV
Total Output Voltage	$V_{\text{IN}} = -24\text{V}$ to -35V							
Tolerance	Power Pkgs: $I_O = 5\text{mA}$ to 1.0A , $P \leq 20\text{W}$	-19.4	-20.0	-20.6	-19.0	-20.0	-21.0	V
	T - Pkg: $I_O = 5\text{mA}$ to 500mA , $P \leq 2\text{W}$	-19.4	-20.0	-20.6	-19.0	-20.0	-21.0	V
Quiescent Current	Over Temperature Range			4			4	mA
	$T_J = 25^{\circ}\text{C}$			3			3	mA
Quiescent Current Change	with Line: $V_{\text{IN}} = -24\text{V}$ to -35V			1.0			1.0	mA
	with Load: $I_O = 5\text{mA}$ to 1.0A (Power Packages)			0.5			0.5	mA
	$I_O = 5\text{mA}$ to 500mA (T)			0.5			0.5	mA
Dropout Voltage	$\Delta V_O = 100\text{mV}$, $T_J = 25^{\circ}\text{C}$							
	Power Pkgs: $I_O = 1.0\text{A}$, T - Pkg: $I_O = 500\text{mA}$		1.1	2.3		1.1	2.3	V
Peak Output Current	Power Pkgs: $T_J = 25^{\circ}\text{C}$	1.5		3.3	1.5		3.3	A
	T - Pkg: $T_J = 25^{\circ}\text{C}$	0.5		1.4	0.5		1.4	A
Short Circuit Current	Power Pkgs: $V_{\text{IN}} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			1.2			1.2	A
	T - Pkg: $V_{\text{IN}} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			0.6			0.6	A
Ripple Rejection	$\Delta V_{\text{IN}} = 10\text{V}$, $f = 120\text{Hz}$, $T_J = 25^{\circ}\text{C}$	54			54			dB
Output Noise Voltage (rms)	$f = 10\text{Hz}$ to 100kHz (Note 2)		25	80		25	80	$\mu\text{V/V}$
Long Term Stability	1000hrs. at $T_J = 125^{\circ}\text{C}$		80			80		mV
Thermal Shutdown	$I_O = 5\text{mA}$		175			175		$^{\circ}\text{C}$

SG7920AC/SG7920C

Parameter	Test Conditions	SG7920AC			SG7920C			Units
		Min.	Typ.	Max.	Min.	Typ.	Max.	
Output Voltage	$T_J = 25^{\circ}\text{C}$	-19.7	-20.0	-20.3	-19.2	-20.0	-20.8	V
Line Regulation (Note 1)	$V_{\text{IN}} = -23\text{V}$ to -35V , $T_J = 25^{\circ}\text{C}$		6	120		11	300	mV
	$V_{\text{IN}} = -26\text{V}$ to -32V , $T_J = 25^{\circ}\text{C}$		4	70		3	150	mV
Load Regulation (Note 1)	Power Pkgs: $I_O = 5\text{mA}$ to 1.5A , $T_J = 25^{\circ}\text{C}$		30	140		12	400	mV
	$I_O = 250\text{mA}$ to 750mA , $T_J = 25^{\circ}\text{C}$		4	80		10	200	mV
	T - Pkg: $I_O = 5\text{mA}$ to 500mA , $T_J = 25^{\circ}\text{C}$		10	80		10	300	mV
Total Output Voltage	$V_{\text{IN}} = -24\text{V}$ to -35V							
Tolerance	Power Pkgs: $I_O = 5\text{mA}$ to 1.0A , $P \leq 20\text{W}$	-19.4	-20.0	-20.6	-19.0	-20.0	-21.0	V
	T - Pkg: $I_O = 5\text{mA}$ to 500mA , $P \leq 2\text{W}$	-19.4	-20.0	-20.6	-19.0	-20.0	-21.0	V
Quiescent Current	Over Temperature Range			4			4	mA
	$T_J = 25^{\circ}\text{C}$			3			3	mA
Quiescent Current Change	with Line: $V_{\text{IN}} = -24\text{V}$ to -35V			1.0			1.0	mA
	with Load: $I_O = 5\text{mA}$ to 1.0A (Power Packages)			0.5			0.5	mA
	$I_O = 5\text{mA}$ to 500mA (T)			0.5			0.5	mA
Dropout Voltage	$\Delta V_O = 100\text{mV}$, $T_J = 25^{\circ}\text{C}$							
	Power Pkgs: $I_O = 1.0\text{A}$, T - Pkg: $I_O = 500\text{mA}$		1.1	2.3		1.1	2.3	V
Peak Output Current	Power Pkgs: $T_J = 25^{\circ}\text{C}$	1.5		3.3	1.5		3.3	A
	T - Pkg: $T_J = 25^{\circ}\text{C}$	0.5		1.4	0.5		1.4	A
Short Circuit Current	Power Pkgs: $V_{\text{IN}} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			1.2			1.2	A
	T - Pkg: $V_{\text{IN}} = -35\text{V}$, $T_J = 25^{\circ}\text{C}$			0.6			0.6	A
Ripple Rejection	$\Delta V_{\text{IN}} = 10\text{V}$, $f = 120\text{Hz}$, $T_J = 25^{\circ}\text{C}$	54			54			dB
Output Noise Voltage (rms)	$f = 10\text{Hz}$ to 100kHz (Note 2)		25	80		25	80	$\mu\text{V/V}$
Long Term Stability	1000hrs. at $T_J = 125^{\circ}\text{C}$		80			80		mV
Thermal Shutdown	$I_O = 5\text{mA}$		175			175		$^{\circ}\text{C}$

Note 1. All regulation tests are made at constant junction temperature with low duty cycle testing.

2. This test is guaranteed but is not tested in production.

CONNECTION DIAGRAMS & ORDERING INFORMATION (See Notes Below)

Package	Part No.	Ambient Temperature Range	Connection Diagram
3-TERMINAL TO-3 METAL CAN K-PACKAGE	SG79XXAK/883B SG79XXAK SG79XXACK SG79XXK/883B SG79XXK SG79XXK	-55°C to 125°C -55°C to 125°C 0°C to 70°C -55°C to 125°C -55°C to 125°C 0°C to 70°C	
3-TERMINAL TO-66 METAL CAN R-PACKAGE	SG79XXAR/883B SG79XXAR SG79XXACR SG79XXR/883B SG79XXR SG79XXCR	-55°C to 125°C -55°C to 125°C 0°C to 70°C -55°C to 125°C -55°C to 125°C 0°C to 70°C	
3-PIN TO-39 METAL CAN T-PACKAGE	SG79XXAT/883B SG79XXAT SG79XXACT SG79XXT/883B SG79XXT SG79XXCT	-55°C to 125°C -55°C to 125°C 0°C to 70°C -55°C to 125°C -55°C to 125°C 0°C to 70°C	
3-PIN HERMETIC TO-257 G-PACKAGE (Non-Isolated)	SG79XXAG/883B SG79XXAG SG79XXG/883B SG79XXG	-55°C to 125°C -55°C to 125°C -55°C to 125°C -55°C to 125°C	
3-PIN HERMETIC TO-257 IG-PACKAGE (Isolated)	SG79XXAIG/883B SG79XXAIG SG79XXIG/883B SG79XXIG	-55°C to 125°C -55°C to 125°C -55°C to 125°C -55°C to 125°C	

Note 1. Contact factory for JAN and DESC product availability.

2. All parts are viewed from the top.

3. "XX" to be replaced by output voltage of specific fixed regulator.

4. Some products will be available in leadless chip carrier (LCC) and hermetic flat pack (F). Consult factory for price and availability