



3.3V 600mA Low Dropout Regulator

Features

- Dropout voltage typically 0.65V @ $I_o = 600\text{mA}$
- Output current in excess of 600mA
- Output voltage accuracy $\pm 2\%$
- Quiescent current, typically 0.3mA
- Internal short circuit current limit
- Internal over temperature protection

General Description

The G903 positive 3.3V voltage regulator features the ability to source 600mA of output current with a dropout voltage of typically 0.65V. A low quiescent current is provided. The typical quiescent current is 0.3mA.

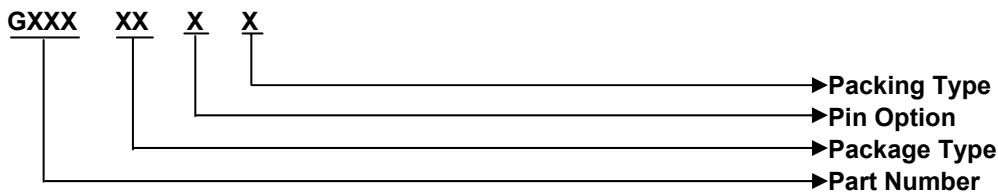
Familiar regulator features such as over temperature and over current protection circuits are provided to prevent it from being damaged by abnormal operating conditions.

Ordering Information

ORDER NUMBER	ORDER NUMBER (Pb free)	PACKAGE	PIN OPTION		
			1	2	3
G903T63U	G903T63Uf	SOT223	GND	V_{OUT}	V_{IN}
G903T65U	G903T65Uf	SOT223	V_{IN}	GND	V_{OUT}

* For other package types, pin options and package, please contact us at sales@gmt.com.tw

Order Number Identification



PACKAGE TYPE

T6: SOT223

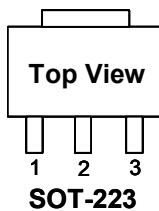
PIN OPTION

1	2	3
1 : V_{OUT}	GND	V_{IN}
2 : V_{OUT}	V_{IN}	GND
3 : GND	V_{OUT}	V_{IN}
4 : GND	V_{IN}	V_{OUT}
5 : V_{IN}	GND	V_{OUT}
6 : V_{IN}	V_{OUT}	GND

PACKING

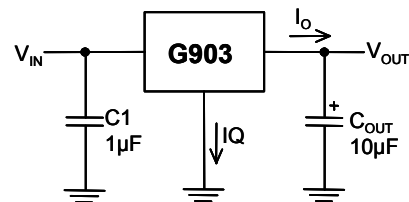
U & D : Tape & Reel Direction
T : Tube
B : Bag

Package Type



Typical Application

[Note 4]: Type of C_{OUT}





Absolute Maximum Ratings	(Note 1)
Input Voltage.....	7V
Power Dissipation Internally Limited	(Note2)
Maximum Junction Temperature.....	150°C
Storage Temperature Range.....	-65°C ≤ T _J ≤ +150°C
Reflow Temperature (soldering, 10sec).....	260°C
Thermal Resistance Junction to Ambient, (θ _{JA})	
SOT-223.....	147°C/W
Thermal Resistance Junction to Case, (θ _{Jc})	
SOT-223.....	27°C/W

Operating Conditions	(Note 1)
Input Voltage.....	4V ~ 6.5V
Temperature Range.....	-40°C ≤ T _A ≤ 85°C

Note (1): See Recommended Minimum Footprint.

Electrical Characteristics

V_{IN} = 5V, I_O = 600mA, C_{IN} = 10µF, C_{OUT} = 10µF. All specifications apply for T_A = T_J = 25°C. [Note 3]

PARAMETER	CONDITION	MIN	TYP	MAX	UNIT
Output Voltage	10mA ≤ I _O ≤ 600mA	3.234	3.3	3.366	V
Line Regulation	4V ≤ V _{IN} ≤ 6V, I _O = 10mA	---	15	---	mV
Load Regulation	10mA ≤ I _O ≤ 600mA	---	20	---	mV
	10mA ≤ I _O ≤ 250mA	---	10	---	
Quiescent Current	V _{IN} = 5V	---	0.3	---	mA
Ripple Rejection	f _i = 120 Hz, 1V _{P-P} , I _O = 100mA	---	47	---	dB
Dropout Voltage	I _O = 600mA	---	0.65	---	V
	I _O = 250mA	---	0.25	---	
Output Current		---	600	---	mA
Short Circuit Current		---	0.65	---	A
Current Limit			0.8		A
Over Temperature		---	145	---	°C

Note 1: Absolute Maximum Ratings are limits beyond which damage to the device may occur. Operating Conditions are conditions under which the device functions but the specifications might not be guaranteed. For guaranteed specifications and test conditions see the Electrical Characteristics.

Note2: The maximum power dissipation is a function of the maximum junction temperature, T_{Jmax}; total thermal resistance, θ_{JA}, and ambient temperature T_A. The maximum allowable power dissipation at any ambient temperature is T_{Jmax}-T_A / θ_{JA}. If this dissipation is exceeded, the die temperature will rise above 150°C and IC will go into thermal shutdown. The θ_{JA} of SOT223 package is 147°C/W (See Recommended Minimum Footprint).

Note3: Low duty pulse techniques are used during test to maintain junction temperature as close to ambient as possible.

Note4: The type of output capacitor should be tantalum or aluminum.

Definitions

Dropout Voltage

The input/output Voltage differential at which the regulator output no longer maintains regulation against further reductions in input voltage. Measured when the output drops 100mV below its nominal value, dropout voltage is affected by junction temperature, load current and minimum input supply requirements.

Line Regulation

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

Load Regulation

The change in output voltage for a change in load current at constant chip temperature. The measurement is made under conditions of low dissipation or by using pulse techniques such that average chip temperature is not significantly affected.

Maximum Power Dissipation

The maximum total device dissipation for which the regulator will operate within specifications.

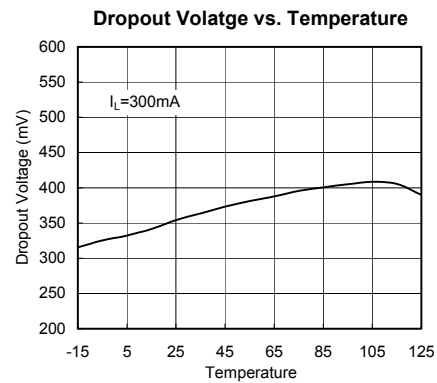
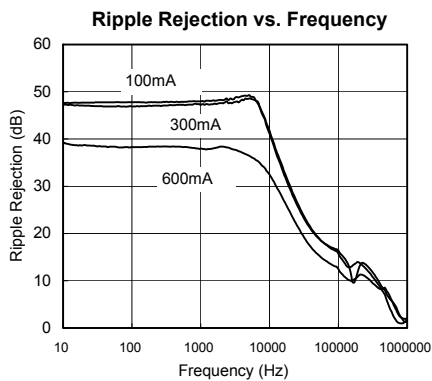
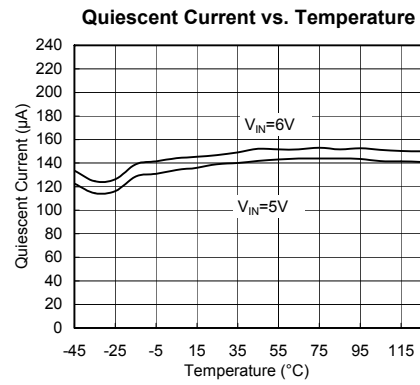
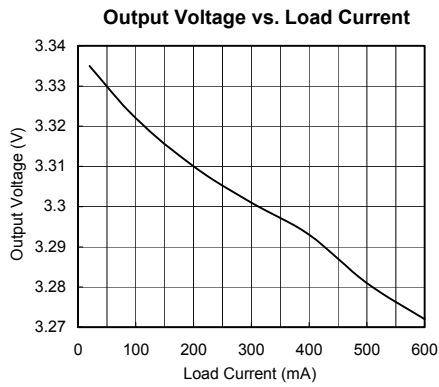
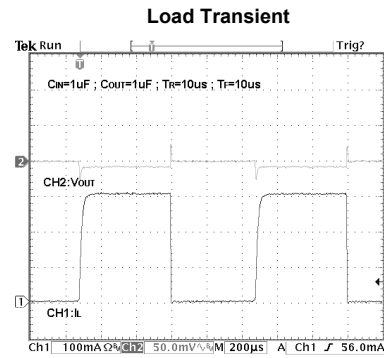
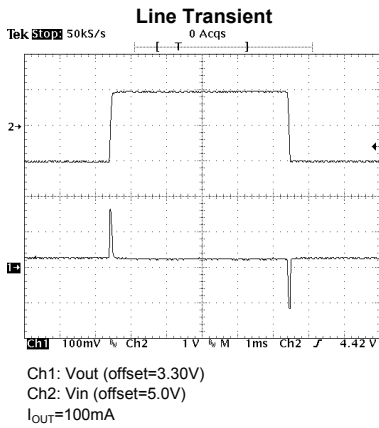
Quiescent Bias Current

Current which is used to operate the regulator chip and is not delivered to the load.



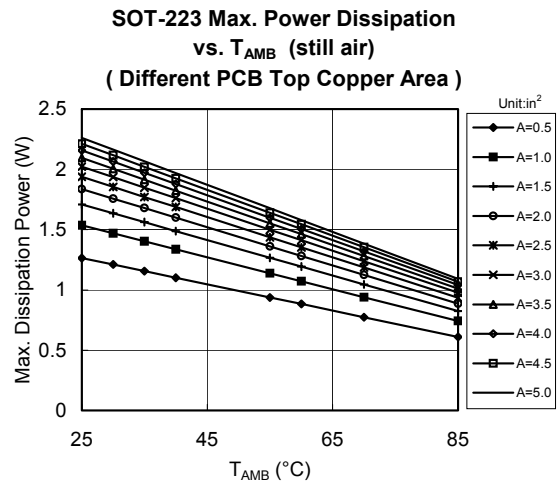
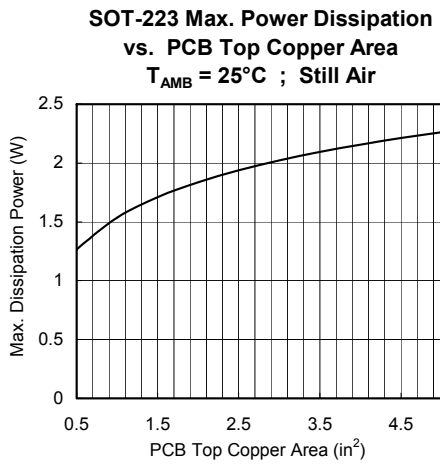
Typical Performance Characteristics

(VIN=+5V, CIN=10μF, COUT=10μF, TA=25°C, unless otherwise noted.)

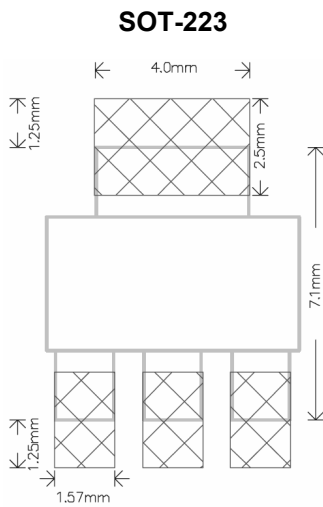


Typical Performance Characteristics

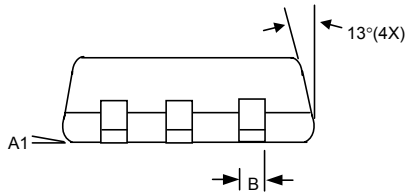
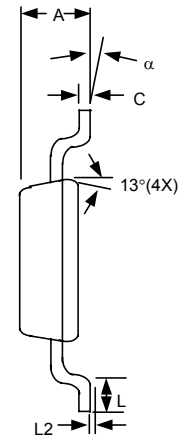
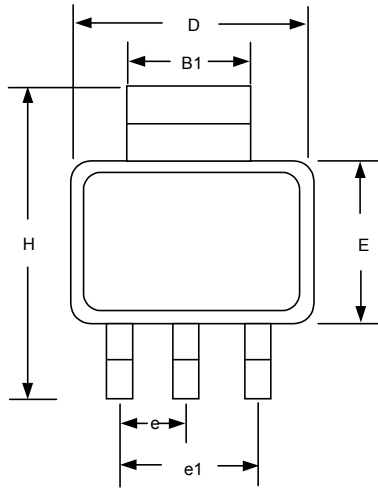
($V_{IN}=5V$, $C_{IN}=10\mu F$, $C_{OUT}=10\mu F$, $T_A=25^\circ C$, unless otherwise noted.)



Recommended Minimum Footprint



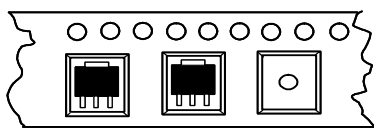
Package Information



SOT223 (T6) Package

SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.55	1.80	0.061	0.071
A1	0.02	0.12	0.0008	0.0047
B	0.60	0.80	0.024	0.031
B1	2.90	3.10	0.114	0.122
C	0.24	0.32	0.009	0.013
D	6.30	6.70	0.248	0.264
E	3.30	3.70	0.130	0.146
e	2.30 BSC		0.090 BSC	
e1	4.60 BSC		0.181 BSC	
H	6.70	7.30	0.264	0.287
L	0.90 MIN		0.036 MIN	
L2	0.06 BSC		0.0024 BSC	
α	0°	10°	0°	10°

Taping Specification



**Feed Direction
SOT-223 Package Orientation**

PACKAGE	Q'TY/REEL
SOT-223	2,500 ea

GMT Inc. does not assume any responsibility for use of any circuitry described, no circuit patent licenses are implied and GMT Inc. reserves the right at any time without notice to change said circuitry and specifications.