

Quadruple Rail-to-Rail Operational Amplifiers

Features

- Wide Supply Operation Range +4.5V to +20V
- Input Common Voltage Range Beyond the Rails
- Rail-to-Rail Output Voltage Swing
- High Peak Source Capability 900mA
- High Peak Sink Capability 900mA
- Low Input Offset Voltage 3mV (Typical)
- Wide -3dB Bandwidth 35MHz
- Quiescent Current: 6.0mA
- Large DC Voltage Gain 80dB (Typical)
- Slew-Rate 30V/μs
- Unit-Gain Stable

Applications

- Portable Equipment
- LCD-TV Equipment
- Battery-Powered Equipment
- ASIC Input or Output Amplifier
- Low Power/Low Voltage Applications

General Description

The G1584A consists of one independent, high gain, internally frequency compensated operational amplifiers which was designed to operate from a single power supply over a wide range of voltages. Operation from split power supplies is also possible. The input common mode range of the G1584A can be beyond the rails, and the G1584A is with rail-to-rails output voltage swing. The quiescent current is 6.0mA, typically.

The G1584A also feature fast slewing and settle-times, as well as high output drive capability of source 900mA /sink 900mA. These features make this amplifier ideal for use as reference buffers for TFT-LCD. Other applications include battery power, portable devices, and anywhere low power consumption is important.

The G1584A is housed in a TSSOP-14, TSSOP-14 (FD) package.

Ordering Information

ORDER NUMBER	MARKING	TEMP. RANGE	PACKAGE (Green)
G1584AD21U	G1584A	-40°C~ +85°C	TSSOP-14
G1584AFA1U	G1584A	-40°C~ +85°C	TSSOP-14 (FD)

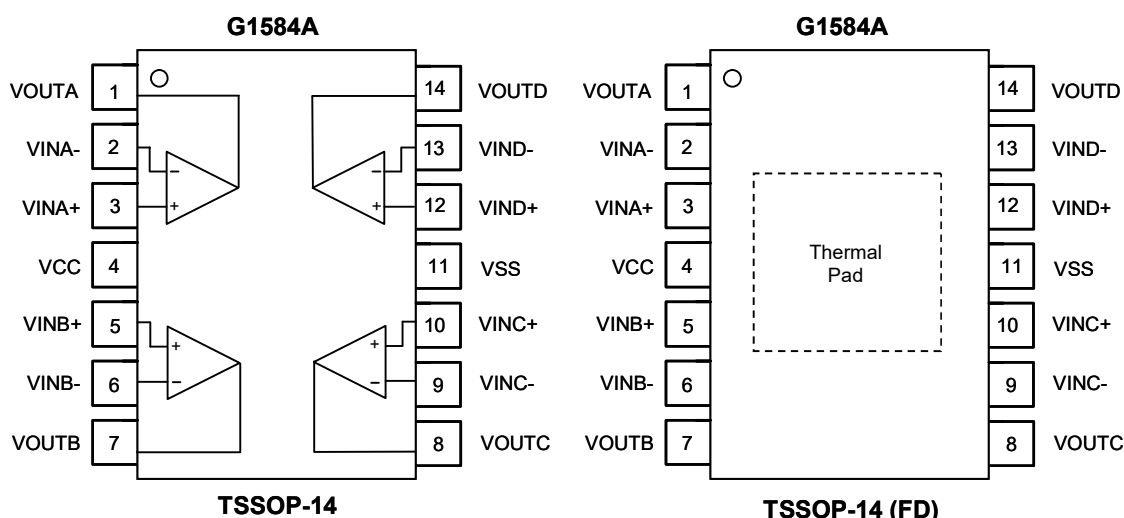
Note: D2:TSSOP-14 FA :TSSOP-14 (FD)

1: Bonding Code

U: Tape & Reel

Green : Lead Free / Halogen Free.

Pin Configuration



Note: Recommend connecting the Thermal Pad to the Pin#11 VSS for excellent power dissipation.

Absolute Maximum Ratings

Supply Voltage (V_{DD} to GND) 24V
 Storage Temperature Range. -65°C to 150°C
 Input Voltage -0.3V to $V_{CC} + 0.3V$
 ESD Susceptibility 2000V
 Junction Temperature. 150°C
 Thermal Resistance Junction to Ambient, (θ_{JA})*
 TSSOP-14 135°C/W
 TSSOP-14 (FD) 130°C/W
 Continuous Power Dissipation ($T_A=25^\circ\text{C}$)*
 TSSOP-14 0.8W

TSSOP-14 (FD) 0.85W
 Thermal Resistance Junction to Case, (θ_{JC})
 TSSOP-14 30°C/W
 TSSOP-14 (FD) 20°C/W
 Reflow Temperature (soldering, 10sec) 260°C

Operation Conditions

Operating Supply Voltage Range . $4.5V \leq V_{DD} \leq 19.5V$
 Operating Temperature Range -40°C to 85°C

* Please refer to Minimum Footprint PCB Layout Section.

Electrical Characteristics

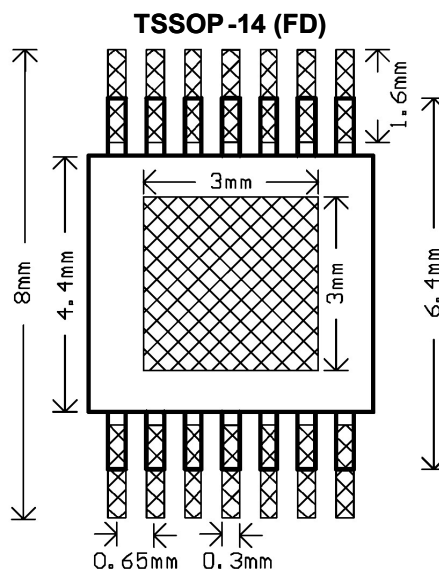
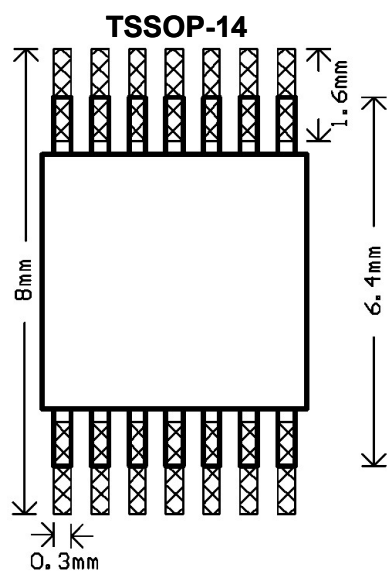
$V_{CC} = 14V$; $V_{SS} = 0V$; $T_{AMB} = 25^\circ\text{C}$; $C_L = 10pF$, $R_L = 10k\Omega$ to $V_{CC}/2$.

The device is not guaranteed to function outside its operating conditions. Parameters with MIN and/or MAX limits are 100% tested at +25°C, unless otherwise specified.

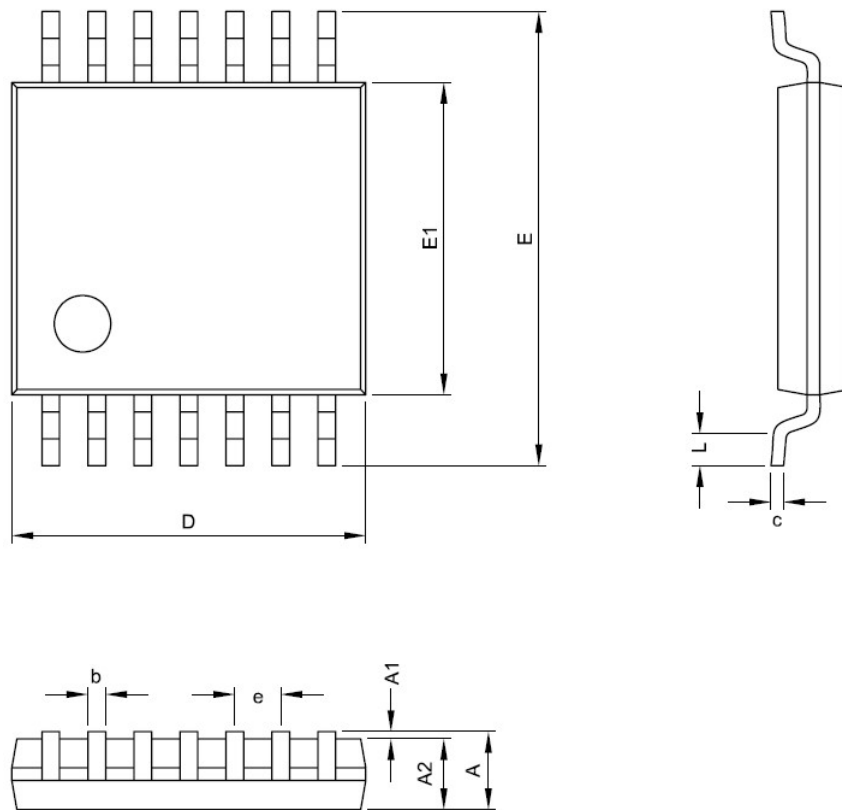
PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
Supplies						
Supply Voltage Range	$V_{CC}-V_{SS}$	Note1	4.5	---	19.5	V
Supply Current	I_{CC1}	$V_O=0V$ no load ; per CH	---	1.5	---	mA
DC Characteristics						
Input Offset Voltage	$V_{I(OS)}$		-15	3	+15	mV
Common Mode Voltage	V_{CM}	Inferred from CMRR test	$V_{SS}-0.5$	---	$V_{CC}+0.5$	V
Input Bias Current	I_B	$V_{CM}=0$	---	2	100	nA
Input Impedence			---	1	---	GΩ
Open Loop Gain	A_V	$V_O = 5V$ to 14V	60	80	---	dB
Output Voltage Swing High	V_{OH}	$I_{load}=5mA$	$V_{CC}-0.15$	$V_{CC}-0.03$	---	V
Output Voltage Swing Low	V_{OL}	$I_{load}=-5mA$	---	30	150	mV
Continuous Output Current	I_O		---	±300	---	mA
High Peak Source Current	I_{Source}		---	900	---	mA
High Peak Sink Current	I_{Sink}		---	900	---	mA
Power Supply Rejection Ratio	PSRR	$5V \leq V_{CC} \leq 19V$	60	80	---	dB
Common-Mode Rejection Ratio	CMRR	$V_{SS} \leq V_{CM} \leq V_{CC}$	50	67	---	dB
Slew Rate		2V to +8V 20% to 80%	15	30	---	V/μS
-3dB Bandwidth		$R_L=10k\Omega$ $C_L=10pF$	---	35	---	MHz

Note1: Guaranteed by the Power-Supply Rejection Ratio (PSRR) test

Minimum Footprint PCB Layout Section



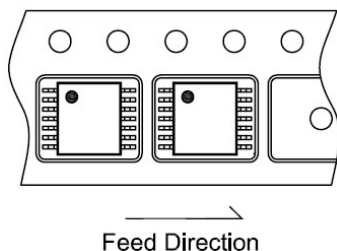
Package Information



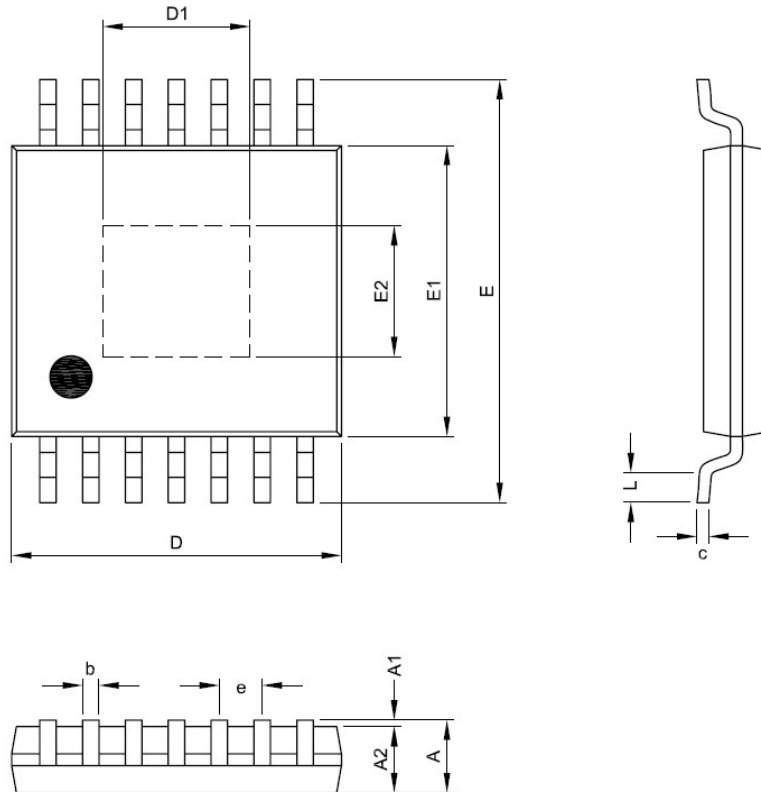
TSSOP-14 Package

Symbol	DIMENSION IN MM			DIMENSION IN INCH		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	---	---	1.20	---	---	0.048
A1	0.00	---	0.15	0.000	---	0.006
A2	0.80	1.00	1.05	0.031	0.039	0.041
D	4.90	5.00	5.10	0.193	0.197	0.201
E	6.20	6.40	6.60	0.244	0.252	0.260
E1	4.30	4.40	4.50	0.169	0.173	0.177
c	0.09	---	0.20	0.004	---	0.008
b	0.19	0.22	0.30	0.008	0.009	0.012
e	0.65 BSC			0.026 BSC		
L	0.45	0.60	0.75	0.018	0.024	0.030

Taping Specification



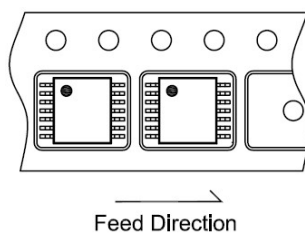
PACKAGE	Q'TY/REEL
TSSOP-14	3,000 ea



TSSOP-14 (FD) Package

Symbol	DIMENSION IN MM			DIMENSION IN INCH		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	---	---	1.20	---	---	0.048
A1	0.00	---	0.15	0.000	---	0.006
A2	0.80	1.00	1.05	0.031	0.039	0.041
D	4.90	5.00	5.10	0.193	0.197	0.201
E	6.20	6.40	6.60	0.244	0.252	0.260
E1	4.30	4.40	4.50	0.169	0.173	0.177
D1	2.90 BSC			0.114 BSC		
E2	2.90 BSC			0.114 BSC		
c	0.09	---	0.20	0.004	---	0.008
b	0.19	0.22	0.30	0.008	0.009	0.012
e	0.65 BSC			0.026 BSC		
L	0.45	0.60	0.75	0.018	0.024	0.030

Taping Specification



PACKAGE	Q'TY/REEL
TSSOP-14 (FD)	3,000 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.