

1.1 Scope.

This specification covers the detail requirements for a two quadrant wideband dual-channel linear multiplier/divider. The transfer function is: $V_{OUT} = -V_x V_y / V_q$ with a suitable external op amp.

1.2 Part Number.

The complete part number per Table 1 of this specification is as follows:

Device	Part Number ¹
-1	AD539S(X)/883B

Note

¹See Paragraph 1.2.3 for Package Identifier.

1.2.3 Case Outline.

See Appendix 1 of General Specification ADI-M-1000: package outline: D-16, E-20A.

(X)	Package	Description
D	D-16	16-Pin DIP
E	E-20A	20 Contact LCC

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

Supply Voltage	± 15V
Internal Power Dissipation	135mW
Rated Operating Temperature Range	-55°C to +125°C
Storage Temperature Range	-65°C to +150°C
Lead Temperature (Soldering 10sec)	+300°C

1.5 Thermal Characteristics.

Thermal Resistance θ_{JC}	= 25°C/W for D-16
θ_{JA}	= 90°C/W for D-16
θ_{JC}	= 22°C/W for E-20A
θ_{JA}	= 85°C/W for E-20A

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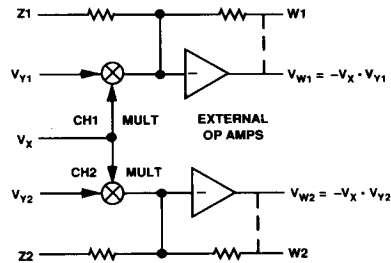
Table 1.

Test	Symbol	Device	Design Limit @ +25°C	Sub Group 1	Sub Group 4	Test Condition ¹	Units
Multiplier Scaling Voltage CH1 and CH2	V_Q	-1	0.98 1.02	0.98 1.02			V min V max
Total Multiplication Error CH1 and CH2	E_T	-1	2.5	2.5			± % of FS max
V_Y , Signal Input, Bias	I_{IB}	-1	30	30			± μA max
Signal Input, Offset Voltage	V_{OSI}	-1	20	20		$V_X = 3V, V_Y = 0$	± mV max
V_X , Control Input, Offset Voltage	V_{OSCI}	-1	4	4			± mV max
dB Gain Error CH1 and CH2	E_{dB}	-1	0.4	0.4		$V_X = 0.1$ to 3V, $V_Y = \pm 2V$	dB max
Control Feedthrough CH1 and CH2	FT_C	-1	60	60		$V_X = 0$ to +3V, $V_Y = 0$	mV max
Power Supply Range	V_S	-1	4.5				± V min
			16.5				± V max
Quiescent Current	I_Q	-1	10.2	10.2		$V_S = \pm 5V$ or $\pm 15V$	mA max
	$-I_Q$	-1	22.2	22.2		$V_S = \pm 5V$ or $\pm 15V$	- mA max

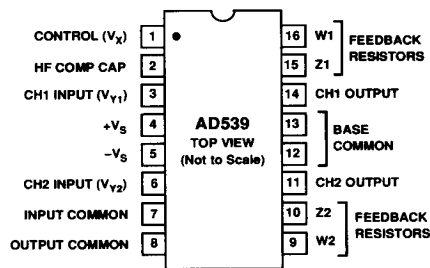
NOTE

¹ $T_A = +25^\circ\text{C}$ and $V_S = \pm 5V$ dc, unless otherwise specified.

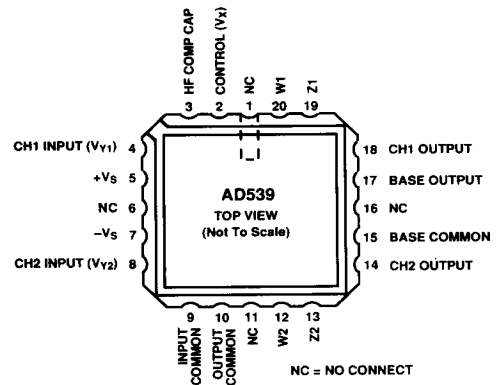
3.2.1 Functional Block Diagram and Terminal Assignments.



DIP Package



LCC Package



3.2.4. Microcircuit Technology Group.

This microcircuit is covered by technology group (49).

4.2.1 Life Test/Burn-In Circuit.

Steady state life test is per MIL-STD-883 Method 1005. Burn-in is per MIL-STD-883 Method 1015 test condition (B).

