dbx 2252 TRUE RMS-LEVEL DETECTOR

DESCRIPTION

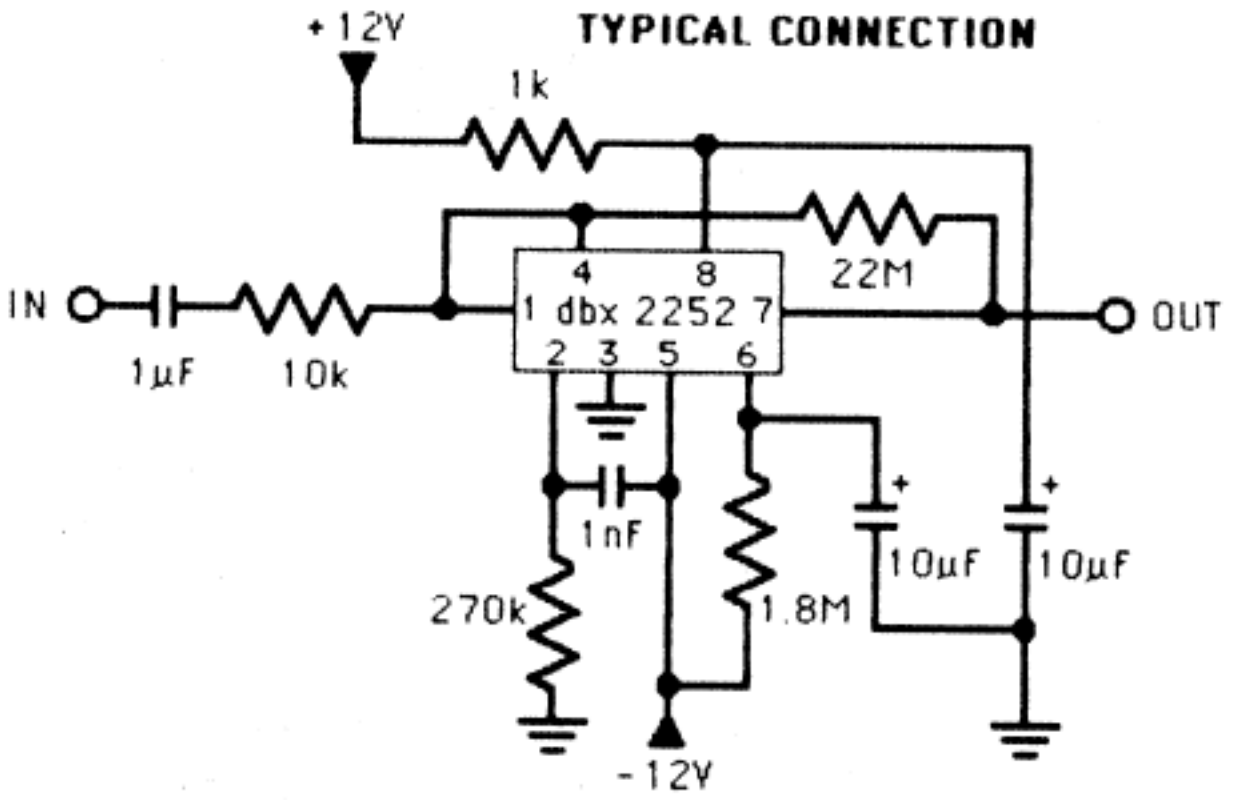
The dbx 2252 integrated-circuit true rms-level detector is a high-performance current-in, voltage-out device that accepts an ac-current input and delivers a logarithmically scaled dc-voltage output. This unique IC presents a voltage output that varies linearly with the decibel change of the ac-input sigal. The 2252 requires little external circuitry and is housed in an 8-pin single-in-line package (SIP) to conserve valuable PC-board real estate. It combines wide dynamic range with frequency response to well beyond 20 kHz and allows external adjustment of attack and release times. Response to dc is possible if restricted low-level dynamic range is acceptable. A benefit of the IC's true rms-detection characteristic is its insensitivity to changes in waveform shape due to phase shift.

The 2252 may be used in metering applications, level sensors, spectrum analyzers, loudspeaker-measurement systems, and for psychoacoustic modeling.

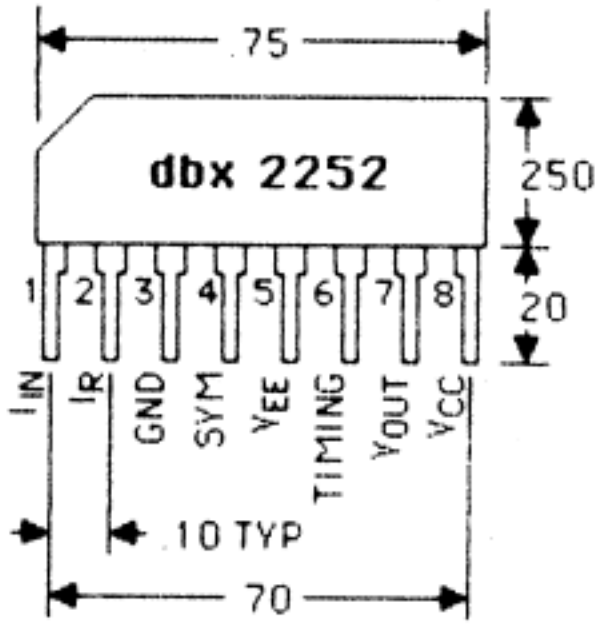
FEATURES

--Wide dynamic range (>80 dB)
--Wide frequency response (dc to >20 kHz)
--Decibel-linear (log-scaled) output
--SIP package for high-density PCB designs
--Operates at voltages down to ±4 V
--Low cost ($2.40 ea. in 000s)

TYPICAL CONNECTION



PIN CONFIGURATION



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2252 RMS-LEVEL DETECTOR SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS

	DESIGNATION	ABS MAX	UNIT
Applied Supply Voltage	V_{CC}, V_{EE}	30	V
Power Dissipation	P_D	330	mW
Operating Temperature	T_A	-10 to +65	°C
Storage Temperature	T_{ST}	-40 to +125	°C

RECOMMENDED OPERATING CONDITIONS

	DESIGNATION	MIN	TYP	MAX	UNIT
Supply Voltage	VCC, VEE	±4	±12	±15	V
Bias Current	IR	-15	--	-50	µA
Timing Current	IT	0	--	-15	µA
Signal Current	IIN	--	--	200	µA

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

	DESIGNATION	CONDITIONS	MIN	TYP	MAX	UNIT
Equivalent Input Bias	I_{INB}	No signal	--	5	8	nA
Response Linearity		±30 dB input range	--	±0.5	±1.0	dB
Gain-Control Constant	E_C	±30 dB input range	5.8	5.9	6.0	mV/dB
Output Thermal Coefficient		±30 dB input range	--	0.33	--	%/°C
Equivalent Minimum Input		No signal	--	-80	--	dB

NOTE: All dB specifications are referred to the 2252's 0-dB level. This is the level at which the rms detector output equals 0 volts. For the circuit shown, 0 volts appears at the output for an input of approximately 60 mV_{RMS}.

PATENT NOTICE: While dbx encourages the use by the purchaser of the 2252 rms detector in simple rms-level measurement designs for meters, level indicators, spectrum analyzers and the like, the sale of the 2252 to the purchaser is not to be construed to grant any license, express or implied, under any U.S. or foreign patent of any third party or any of the following U.S. dbx patents: 3,789,143; 4,101,849; 4,112,254; 4,177,356; 4,182,993; 4,220,929; 4,377,792 and other dbx patents and pending patent applications.