

LOW POWER FM TRANSMITTER SYSTEM

The MC2831A is a one-chip FM transmitter subsystem designed for cordless telephone and FM communication equipment. It includes a Microphone Amplifier, Pilot Tone Oscillator, Voltage Controlled Oscillator and Battery Monitor.

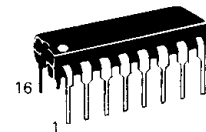
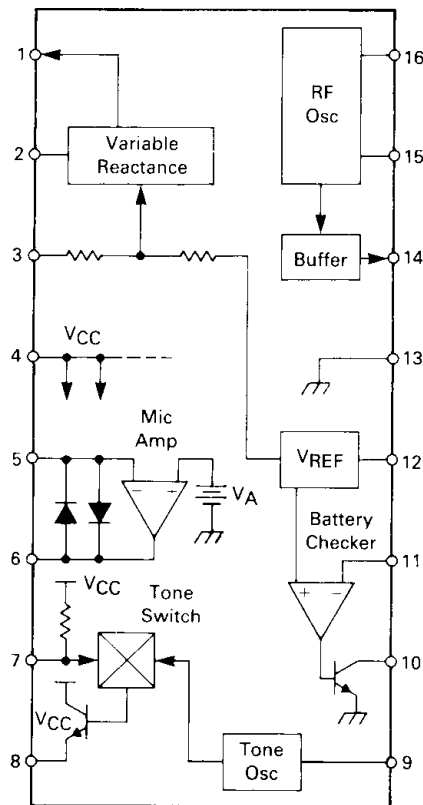
- Wide Range of Operating Supply Voltage (3.0 V–8.0 V)
- Low Drain Current (4.0 mA Typ Full Operation at $V_{CC} = 4.0$ V)
- Battery Checker (290 μ A Typ at $V_{CC} = 4.0$ V)
- Low Number of External Parts Required
- Users Must Comply with Local Regulations on R.F. Transmission (FCC, DOT, P.T.T., etc)

MC2831A

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SILICON MONOLITHIC INTEGRATED CIRCUIT

FUNCTIONAL BLOCK DIAGRAM

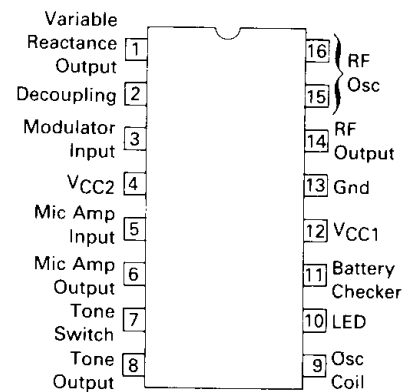


P SUFFIX
 PLASTIC PACKAGE
 CASE 648



D SUFFIX
 PLASTIC PACKAGE
 CASE 751B
 (SO-16)

PIN ASSIGNMENTS



ORDERING INFORMATION

Device	Temperature Range	Package
MC2831AD	-30°C to +75°C	SO-16
MC2831AP		Plastic DIP

MC2831A

MAXIMUM RATINGS (T_A = 25°C, unless otherwise noted)

Rating	Symbol	Value	Unit
Power Supply Voltage	V _{CC}	10	Vdc
Operating Supply Voltage Range	V _{CC}	3.0 to 8.0	Vdc
Battery Checker Output Sink Current	I _{LED}	25	mA
Junction Temperature	T _J	+150	°C
Operating Ambient Temperature Range	T _A	-30 to +75	°C
Storage Temperature Range	T _{stg}	-65 to +150	°C

ELECTRICAL CHARACTERISTICS (V_{CC1} = 4.0 Vdc, V_{CC2} = 4.0 Vdc, T_A = 25°C, unless otherwise noted)

Characteristic	Symbol	Pin	Min	Typ	Max	Unit
Drain Current	I _{CC1}	12	150	290	420	μA
Drain Current	I _{CC2}	4	2.2	3.6	6.5	mA

BATTERY CHECKER

Characteristic	Symbol	Pin	Min	Typ	Max	Unit
Threshold Voltage (LED Off → On)	V _{TB}	11	1.0	1.2	1.4	Vdc
Output Saturation Voltage (Pin 11 = 0 V, Pin 10 Sink Current = 5.0 mA)	V _{OSAT}	10	—	0.15	0.5	Vdc

MIC AMPLIFIER

Characteristic	Symbol	Pin	Min	Typ	Max	Unit
Voltage Gain, Closed Loop (V _{in} = 1.0 mV _{rms} , f _{in} = 1.0 kHz)	A _v	5, 6	27	30	33	dB
Output DC Voltage	V _{Odc}	6	1.1	1.4	1.7	Vdc
Output Swing (V _{in} = 30 mV _{rms} , f _{in} = 1.0 kHz)	V _{OP-P}	6	0.8	1.2	1.6	Vp-p
Total Harmonic Distortion (V _O = 31 mV _{rms} , f _{in} = 1.0 kHz)	THD	6	—	0.7	—	%

PILOT TONE OSCILLATOR (250 Ω LOADING)

Characteristic	Symbol	Pin	Min	Typ	Max	Unit
Output AF Voltage (f _O = 5.0 kHz)	V _{AF0}	8	—	50	—	mV _{rms}
Output DC Voltage	V _{Odc}	8	—	1.4	—	Vdc
Total Harmonic Distortion (f _O = 5.0 kHz, V _{AF} = 150 mV _{rms})	THD	8	—	1.8	5.0	%
Tone Switch Threshold	—	7	1.1	1.4	1.7	Vdc

FM MODULATOR (120 Ω LOADING)

Characteristic	Symbol	Pin	Min	Typ	Max	Unit
Output RF Voltage (f _O = 16.6 MHz)	V _{RFO}	14	—	40	—	mV _{rms}
Output DC Voltage	V _{Odc}	14	—	1.3	—	Vdc
Modulation Sensitivity (Note 1) (V _{in} = 1.0 V ± 0.2 V)	SEN	3, 14	6.0	10	18	Hz mVdc
Maximum Deviation (Note 1) (V _{in} = 0 V to +2.0 V)	F _{dev}	3, 14	±2.5	±5.0	±12.5	kHz
RF Frequency Range	—	14	—	—	60	MHz

Note 1. Modulation sensitivity and maximum deviation are measured at 49.815 MHz, which is the third harmonic of the crystal frequency.

