What is "Embedded - Microcontrollers"?

"Embedded - Microcontrollers" refer to small, integrated circuits designed to perform specific tasks within larger systems. These microcontrollers are essentially compact computers on a single chip, containing a processor core, memory, and programmable input/output peripherals. They are called "embedded" because they are embedded within electronic devices to control various functions, rather than serving as standalone computers. Microcontrollers are crucial in modern electronics, providing the intelligence and control needed for a wide range of applications.

Applications of "Embedded - Microcontrollers"

Details

Product Status	Obsolete
Core Processor	HC08
Core Size	8-Bit
Speed	4MHz
Connectivity	-
Peripherals	LVD, POR, PWM, RF Mod
Number of I/O	12
Program Memory Size	2KB (2K x 8)
Program Memory Type	FLASH
EEPROM Size	-
RAM Size	128 x 8
Voltage - Supply (Vcc/Vdd)	1.8V ~ 3.6V
Data Converters	-
Oscillator Type	Internal
Operating Temperature	-40°C ~ 85°C (TA)
Mounting Type	Surface Mount
Package / Case	32-LQFP
Supplier Device Package	32-LQFP (7x7)
Purchase URL	https://www.e-xfl.com/product-detail/nxp-semiconductors/mchc908rf2cfae

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OUTPUT POWER MEASUREMENT IN TYPICAL CONDITIONS
(434 MHz – V_{CC} = 3 V –25°C)

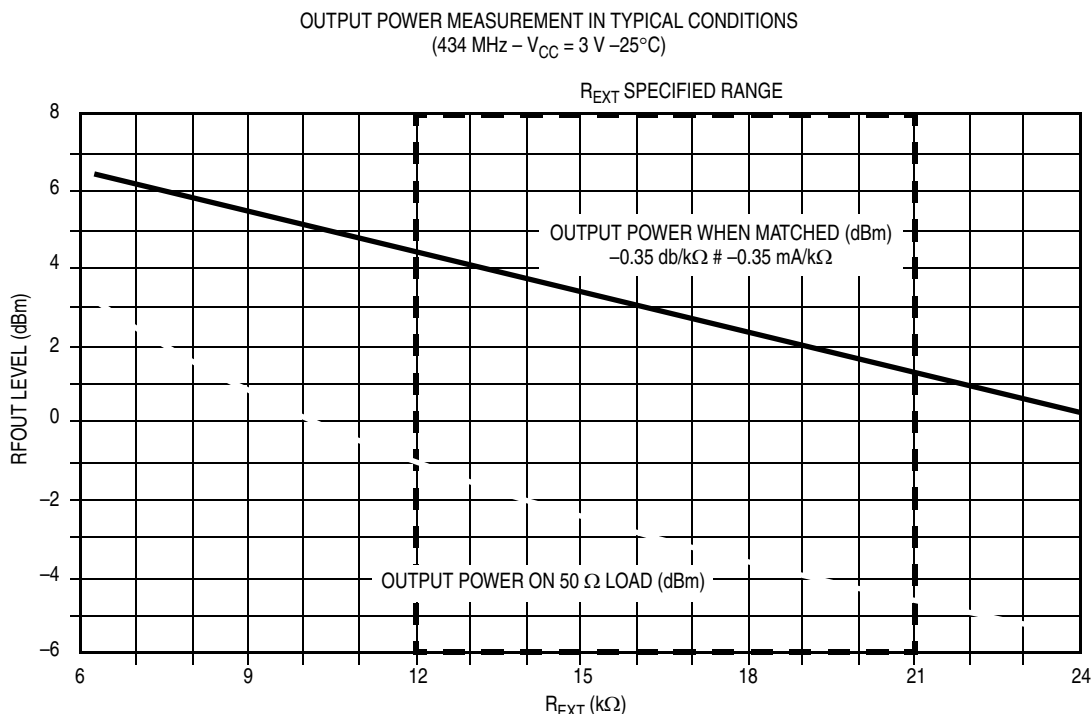**Figure 14-6. Output Power at 434-MHz Frequency Band versus R_{EXT} Value**

14.9 Control Timing

Characteristic[1]	Symbol	Min	Max	Unit
Bus operating frequency V_{DD} = 3.0 V $\pm$ 10% V_{DD} = 2.0 V $\pm$ 10%	f_{Bus}	32 k 32 k	4.0 M 2.0 M	Hz
$\overline{\text{RESET}}$ pulse width low	t_{RL}	1.5	—	t_{cyc}
$\overline{\text{IRQ}}$ interrupt pulse width low (edge-triggered)	t_{ILHI}	1.5	—	t_{cyc}
$\overline{\text{IRQ}}$ interrupt pulse period	t_{ILIL}	Note 4	—	t_{cyc}
16-bit timer[2] Input capture pulse width[3] Input capture period Input clock pulse width	t_{TH}, t_{TL} t_{TLTL} t_{TCH}, t_{TCL}	2 Note[4] $(1/f_{OP})$ + 5	— — —	t_{cyc} t_{cyc} ns

1. V_{DD} = 1.8 V to 3.3 V, V_{SS} = 0 Vdc, T_A = –40°C to +85°C, unless otherwise noted
2. The 2-bit timer prescaler is the limiting factor in determining timer resolution.
3. Refer to **Table 11-3. Mode, Edge, and Level Selection** and supporting note.
4. The minimum period t_{TLTL} or t_{ILIL} should not be less than the number of cycles it takes to execute the capture interrupt service routine plus 2 t_{cyc}.

14.12 Memory Characteristics

Characteristic	Symbol	Min	Typ	Max	Unit
RAM data retention voltage	V_{RDR}	1.3	—	—	V
FLASH pages per row	—	8	—	8	Pages
FLASH bytes per page	—	1	—	1	Bytes
FLASH read bus clock frequency	f_{Read}[1]	32 K	—	2.5 M	Hz
FLASH charge pump clock frequency (See **2.5.2 FLASH 2TS Charge Pump Frequency Control**)	f_{Pump}[2]	1.8	—	2.5	MHz
FLASH block/bulk erase time	t_{Erase}	100	—	—	ms
FLASH row erase time	$t_{RowErase}$	30	—	—	ms
FLASH high voltage kill time	t_{Kill}	200	—	—	μs
FLASH return to read time	t_{HVD}	50	—	—	μs
FLASH page program pulses	fls_{Pulses}[3]	—	—	15	Pulses
FLASH page program step size	t_{Step}[4]	1.0	—	1.2	ms
FLASH cumulative program time per row between erase cycles	t_{Row}[5]	—	—	8	Page program cycles
FLASH HVEN low to MARGIN high time	t_{HVTV}	50	—	—	μs
FLASH MARGIN high to PGM low time	t_{VTP}	150	—	—	μs
FLASH 2TS row program endurance[6]	—	10^4	-—	-—	Cycles
FLASH data retention time[7]	—	15	100	-—	Years

1. f_{Read} is defined as the frequency range for which the FLASH memory can be read.
2. f_{Pump} is defined as the charge pump clock frequency required for program, erase, and margin read operations.
3. fls_{Pulses} is defined as the number of pulses used to program the FLASH using the required smart program algorithm.
4. t_{Step} is defined as the amount of time during one page program cycle that HVEN is held high.
5. t_{Row} is defined as the cumulative time a row can see the program voltage before the row must be erased before further programming.
6. The minimum row endurance value specifies each row of the FLASH 2TS memory is guaranteed to work for at least this many erase/program cycles.
7. The FLASH is guaranteed to retain data over the entire temperature range for at least the minimum time specified.

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