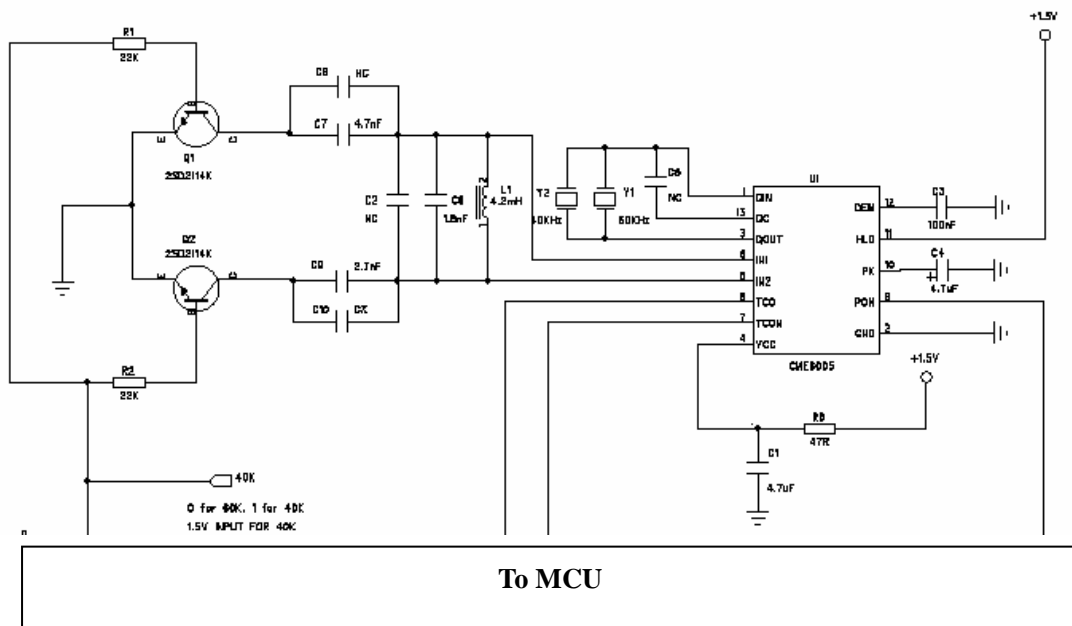


**APPLICATION NOTE : 6005-AN002**  
**CME6005 dual band circuitry**

The CME6005 is a BiCMOS integrated straight through receiver with build in very high sensitivity for the time signal transmitted from WWVB, DCF77, JJY, MSF and HBG. The receiver is prepared for single-and dual band reception.

Below is the circuit diagram for a dual band application using CME6005 and 2 NPN transistors. By making use of these circuit, the CME6005 can switch between dual frequency by control of the MCU.



The MCU is responsible for the control of switch between the two frequencies, controlling the power on (PON) of the receiver IC as well as analyzing the pulses that are provided as output from the CME6005 (TCO or TCON)

In order to obtain the same high sensitivity as single band, the transistor is carefully chosen with specific electrical characteristics.

The electrical characteristics of this transistor are as follows:

**APPLICATION NOTE : 6005-AN002  
CME6005 dual band circuitry****●Electrical characteristics (Ta=25°C)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV <sub>CB0</sub>	25	–	–	V	I <sub>C</sub> =10μA
Collector-emitter breakdown voltage	BV <sub>CEO</sub>	20	–	–	V	I <sub>C</sub> =1mA
Emitter-base breakdown voltage	BV <sub>EB0</sub>	12	–	–	V	I <sub>E</sub> =10μA
Collector cutoff current	I <sub>CB0</sub>	–	–	0.5	μA	V <sub>CB</sub> =20V
Emitter cutoff current	I <sub>EB0</sub>	–	–	0.5	μA	V <sub>EB</sub> =10V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	–	0.18	0.4	V	I <sub>C</sub> /I <sub>B</sub> =500mA/20mA
DC current transfer ratio	h <sub>FE</sub>	820	–	2700	–	V <sub>CE</sub> =3V, I <sub>C</sub> =10mA
Transition frequency	f <sub>T</sub> *	–	350	–	MHz	V <sub>CE</sub> =10V, I <sub>E</sub> = –50mA, f=100MHz
Output capacitance	C <sub>ob</sub>	–	8.0	–	pF	V <sub>CB</sub> =10V, I <sub>E</sub> =0A, f=1MHz
Output On-resistance	R <sub>on</sub>	–	0.8	–	Ω	I <sub>B</sub> =1mA, V <sub>i</sub> =100mV(rms), f=1kHz

\* Measured using pulse current

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### APPLICATION NOTE : 6005-AN002 CME6005 dual band circuitry

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