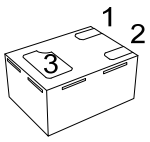
MMBT3904FA

Preliminary | ***NPN SILICON TRANSISTOR***

GENERAL PURPOSE APPLIATION



X2DFN0806-3

■ FEATURES

* Collector-Emitter Voltage: V_{CEO} = 40V
* Complementary to UTC MMBT3906FA

■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
MMBT3904FAL-KBB-R	MMBT3904FAG-KBB-R	X2DFN0806-3	B	E	C	Tape Reel

Note: Pin Assignment: B: Base E: Emitter C: Collector

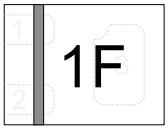
MMBT3904FAG-KBB-R

(1)Packing Type — (1) R: Tape Reel

(2)Package Type — (2) KBB: X2DFN0806-3

(3)Green Package — (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATING (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	200	mA
Peak Pulse Collector Current	I_{CM}	500	mA
Collector Dissipation	P_C	435	W
Junction Temperature	T_J	+150	°C
Storage Temperature	T_{STG}	-55 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	287	°C/W

Note: The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	V_{CBO}	I_C=10μA, I_E=0	60			V
Collector-Emitter Breakdown Voltage	V_{CEO}	I_C=1mA, I_B=0 (Note)	40			V
Emitter-Base Breakdown Voltage	V_{EBO}	I_E=10μA, I_C=0	6			V
Collector Cut-Off Current	I_{CEX}	V_{CE}=30V, V_{EB}=3V			50	nA
Base Cut-Off Current	I_{BL}	V_{CE}=30V, V_{EB}=3V			50	nA
DC Current Gain (Note)	h_{FE}	V_{CE}=1V, I_C=0.1mA	40			
		V_{CE}=1V, I_C=1mA	70			
		V_{CE}=1V, I_C=10mA	100		300	
		V_{CE}=1V, I_C=50mA	60			
		V_{CE}=1V, I_C=100mA	30			
Collector-Emitter Saturation Voltage (Note)	$V_{CE(SAT)}$	I_C=10mA, I_B=1mA			0.2	V
		I_C=50mA, I_B=5mA			0.3	V
Base-Emitter Saturation Voltage (Note)	$V_{BE(SAT)}$	I_C=10mA, I_B=1mA	0.65		0.85	V
		I_C=50mA, I_B=5mA			0.95	V
Current Gain Bandwidth Product	f_T	V_{CE}=20V, I_C=10mA, f=100MHz	300			MHz

Note: Pulse test: $P_W \leq 300\mu s$, Duty Cycle ≤ 2%.