



# FUKUCOM COMPANY LTD.

## 福 靈 有 限 公 司

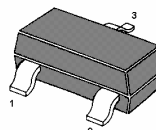
FLAT P, 3/F., EVEREST INDUSTRIAL CENTRE, 396 KWUN TONG ROAD,  
KWUN TONG, KOWLOON, HONG KONG.

TEL: 852-2790 0314 FAX: 852-2790 0206

### MMBTSC3838

#### NPN Silicon Epitaxial Planar Transistor

for high frequency amplifier application



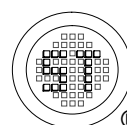
1.BASE 2.EMITTER 3.COLLECTOR  
SOT-23 Plastic Package

#### Absolute Maximum Ratings (T<sub>a</sub> = 25 °C)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V <sub>CB0</sub>	20	V
Collector Emitter Voltage	V <sub>CEO</sub>	11	V
Emitter Base Voltage	V <sub>EBO</sub>	3	V
Collector Current	I <sub>C</sub>	50	mA
Collector Power Dissipation	P <sub>tot</sub>	200	mW
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature Range	T <sub>S</sub>	- 55 to + 150	°C

#### Characteristics at T<sub>a</sub> = 25 °C

Parameter	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V <sub>CE</sub> = 10 V, I <sub>C</sub> = 5 mA Current Gain Group R S	h <sub>FE</sub>	56	-	160	-
	h <sub>FE</sub>	120	-	240	-
Collector Cutoff Current at V <sub>CB</sub> = 10 V	I <sub>CB0</sub>	-	-	0.5	µA
Emitter Cutoff Current at V <sub>EB</sub> = 2 V	I <sub>EBO</sub>	-	-	0.5	µA
Collector Base Breakdown Voltage at I <sub>C</sub> = 10 µA	V <sub>(BR)CB0</sub>	20	-	-	V
Collector Emitter Breakdown Voltage at I <sub>C</sub> = 1 mA	V <sub>(BR)CEO</sub>	11	-	-	V
Emitter Base Breakdown Voltage at I <sub>E</sub> = 10 µA	V <sub>(BR)EBO</sub>	3	-	-	V
Collector Emitter Saturation Voltage at I <sub>C</sub> = 10 mA, I <sub>B</sub> = 5 mA	V <sub>CE(sat)</sub>	-	-	0.5	V
Transition Frequency at V <sub>CE</sub> = 10 V, I <sub>E</sub> = 10 mA, f = 500 MHz	f <sub>T</sub>	1.4	3.2	-	GHz
Output Capacitance at V <sub>CB</sub> = 10 V, f = 1 MHz	C <sub>ob</sub>	-	-	1.5	pF
Noise Figure at V <sub>CE</sub> = 6 V, I <sub>C</sub> = 2 mA, f = 500 MHz, R <sub>g</sub> = 50 Ω	NF	-	3.5	-	dB



Dated : 26/05/2007



FUKUCOM COMPANY LTD.

福靈有限公司

FLAT P, 3/F., EVEREST INDUSTRIAL CENTRE, 396 KWUN TONG ROAD,  
KWUN TONG, KOWLOON, HONG KONG.

TEL: 852-2790 0314 FAX: 852-2790 0206

MMBTSC3838

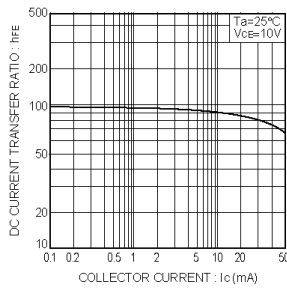


Fig.1 DC current gain vs. collector current

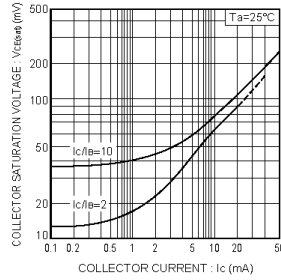


Fig.2 Collector-emitter saturation voltage vs. collector current

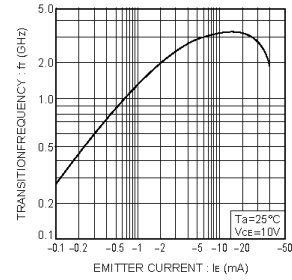


Fig.3 Gain bandwidth product vs. emitter current

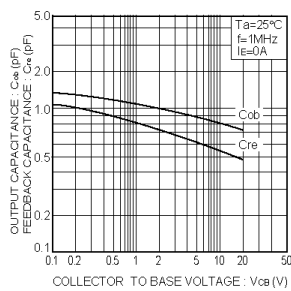


Fig.4 Capacitance vs. reverse bias voltage

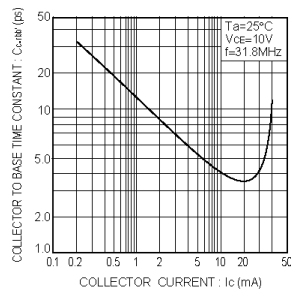


Fig.5 Collector to base time constant vs. collector current

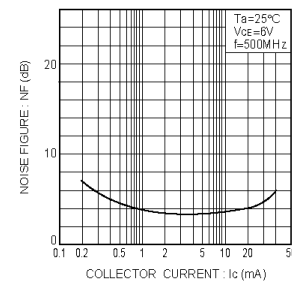


Fig.6 Noise factor vs. collector current characteristics

