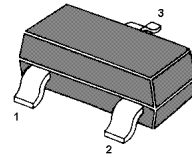


MMBT4403

PNP Silicon General Purpose Transistor

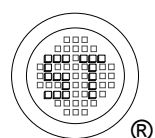


1. Base 2. Emitter 3. Collector
TO-236 Plastic Package

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{\text{CBO}}$	40	V
Collector Emitter Voltage	$-V_{\text{CEO}}$	40	V
Emitter Base Voltage	$-V_{\text{EBO}}$	5	V
Collector Current Continuous	$-I_{\text{C}}$	600	mA
Total Device Dissipation FR-5 Board ¹⁾	P_{tot}	300	mW
Thermal Resistance Junction to Ambient	$R_{\theta\text{JA}}$	417	$^\circ\text{C/W}$
Junction Temperature	T_{j}	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$

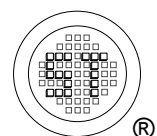
¹⁾ FR-5 = 1 X 0.75 X 0.062 in.

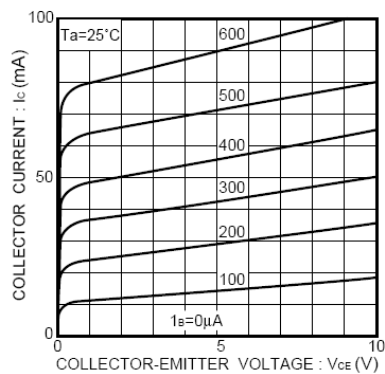


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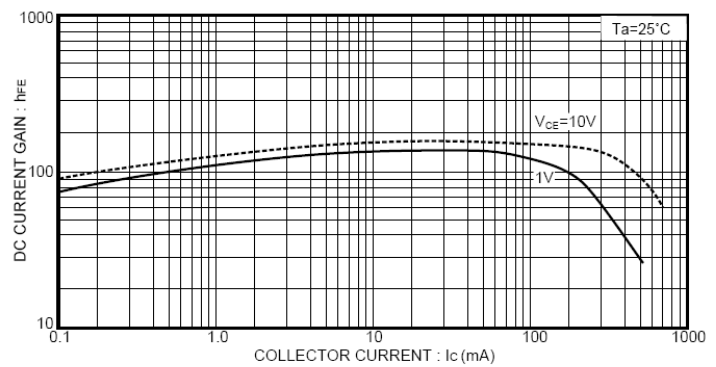
Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain				
at $-V_{CE} = 1\text{ V}$, $-I_C = 0.1\text{ mA}$	h_{FE}	30	-	-
at $-V_{CE} = 1\text{ V}$, $-I_C = 1\text{ mA}$	h_{FE}	60	-	-
at $-V_{CE} = 1\text{ V}$, $-I_C = 10\text{ mA}$	h_{FE}	100	-	-
at $-V_{CE} = 2\text{ V}$, $-I_C = 150\text{ mA}$	h_{FE}	100	300	-
at $-V_{CE} = 2\text{ V}$, $-I_C = 500\text{ mA}$	h_{FE}	20	-	-
Collector Base Cutoff Current at $-V_{CB} = 35\text{ V}$	$-I_{CBO}$	-	0.1	μA
Emitter Base Cutoff Current at $-V_{EB} = 5\text{ V}$	$-I_{EBO}$	-	0.1	μA
Collector Base Breakdown Voltage at $-I_C = 0.1\text{ mA}$	$-V_{(BR)CBO}$	40	-	V
Collector Emitter Breakdown Voltage at $-I_C = 1\text{ mA}$	$-V_{(BR)CEO}$	40	-	V
Emitter Base Breakdown Voltage at $-I_E = 0.1\text{ mA}$	$-V_{(BR)EBO}$	5	-	V
Collector Emitter Saturation Voltage at $-I_C = 150\text{ mA}$, $-I_B = 15\text{ mA}$	$-V_{CE(sat)}$	-	0.4	V
at $-I_C = 500\text{ mA}$, $-I_B = 50\text{ mA}$	$-V_{CE(sat)}$	-	0.75	V
Base Emitter Saturation Voltage at $-I_C = 150\text{ mA}$, $-I_B = 15\text{ mA}$	$-V_{BE(sat)}$	0.75	0.95	V
at $-I_C = 500\text{ mA}$, $-I_B = 50\text{ mA}$	$-V_{BE(sat)}$	-	1.3	V
Current Gain Bandwidth Product at $-V_{CE} = 10\text{ V}$, $-I_C = 20\text{ mA}$, $f = 100\text{ MHz}$	f_T	200	-	MHz
Collector Base Capacitance at $-V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	C_{ob}	-	8.5	pF
Delay Time $-V_{CC} = 30\text{ V}$, $-V_{EB} = 2\text{ V}$, $-I_C = 150\text{ mA}$, $-I_{B1} = 15\text{ mA}$	t_d	-	15	ns
Rise Time $-V_{CC} = 30\text{ V}$, $-V_{EB} = 2\text{ V}$, $-I_C = 150\text{ mA}$, $-I_{B1} = 15\text{ mA}$	t_r	-	20	ns
Storage Time $-V_{CC} = 30\text{ V}$, $-I_C = 150\text{ mA}$, $-I_{B1} = -I_{B2} = 15\text{ mA}$	t_s	-	225	ns
Fall Time $-V_{CC} = 30\text{ V}$, $-I_C = 150\text{ mA}$, $-I_{B1} = -I_{B2} = 15\text{ mA}$	t_f	-	30	ns

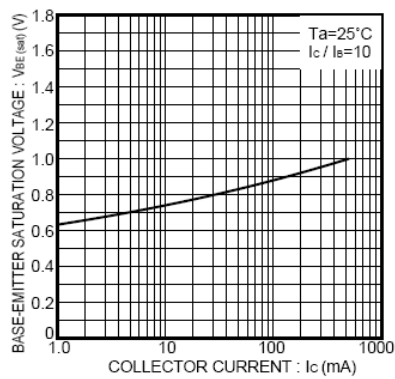




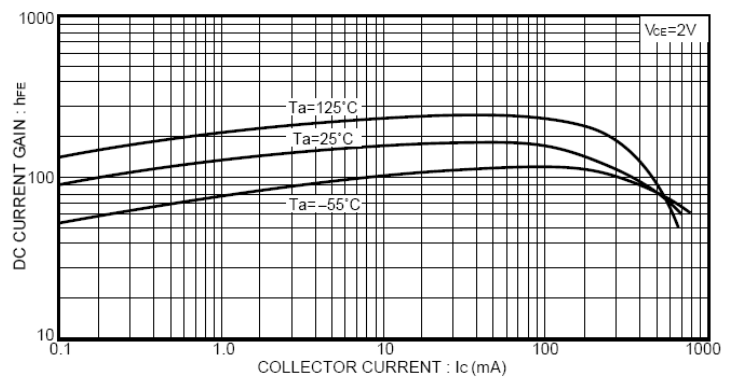
Grounded emitter output characteristics



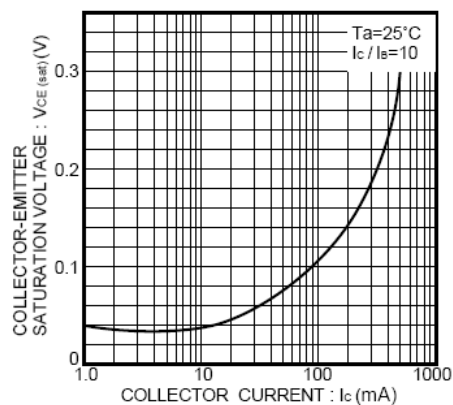
DC current gain vs. collector current (I)



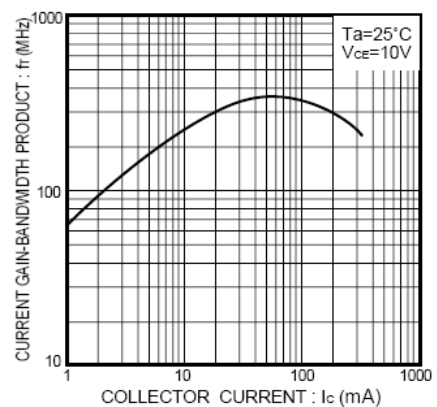
Base-emitter saturation voltage vs. collector current



DC current gain vs. collector current (II)



Collector-emitter saturation voltage vs. collector current



Gain bandwidth product vs. collector current

