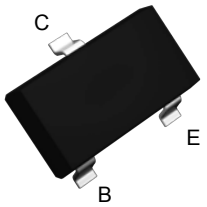
GOOD-ARK
SEMICONDUCTOR

MMBT495
NPN Transistor

Features

- Low VCE(sat)
- h_{FE} characterized up to 1A for high current gain hold up
- For general amplification



SOT-23

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	170	V
Collector - Emitter Voltage	V_{CEO}	150	V
Emitter - Base Voltage	V_{EBO}	5	V
Collector Current - Continuous	I_C	1	A
Collector Power Dissipation	P_C	250	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	500	°C/W
Juction Temperature	T_J	-55 to +150	°C
Storage Temperature	T_{STG}	-55 to +150	°C

Electrical Characteristics (T_A=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=100uA, I_E=0	170	-	V
Collector-Emitter Breakdown Voltage[1]	$V_{(BR)CEO}$	I_C=10mA, I_B=0	150	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=100uA, I_C=0	5	-	V
Collector Cut-off Current	I_{CBO}	V_{CB}=150V, I_E=0	-	0.1	uA
Collector Cut-off Current	I_{CES}	V_{CB}=150V, V_{BE}=0	-	0.1	uA
Emitter Cut-off Current	I_{EBO}	V_{EB}=4V, I_C=0	-	0.1	uA
DC Current Gain[1]	h_{FE1}	V_{CE}=10V, I_C=1mA	100	-	-
	h_{FE2}	V_{CE}=10V, I_C=250mA	100	300	-
	h_{FE3}	V_{CE}=10V, I_C=500mA	50	-	-
	h_{FE4}	V_{CE}=10V, I_C=1A	10	-	-
Collector-Emitter Saturation Voltage[1]	$V_{CE(sat)1}$	I_C=250mA, I_B=25mA	-	0.2	V
	$V_{CE(sat)2}$	I_C=500mA, I_B=50mA	-	0.3	
Base-Emitter Turn-On Voltage[1]	$V_{BE(on)}$	V_{CE}=10V, I_C=500mA	-	1	V
Base-Emitter Saturation Voltage[1]	$V_{BE(sat)}$	I_C=500mA, I_B=50mA	-	1	V
Transition Frequency	f_T	V_{CE}=10V, I_C=50mA, F=100MHz	100	-	MHz
Output Capacitance	C_{ob}	V_{CB}=10V, I_E=0, F=1MHz	-	10	pF

Note:
1. Pulse test: pulse width ≤ 300us, duty cycle ≤ 2%.

Typical Electrical and Thermal Characteristic Curves

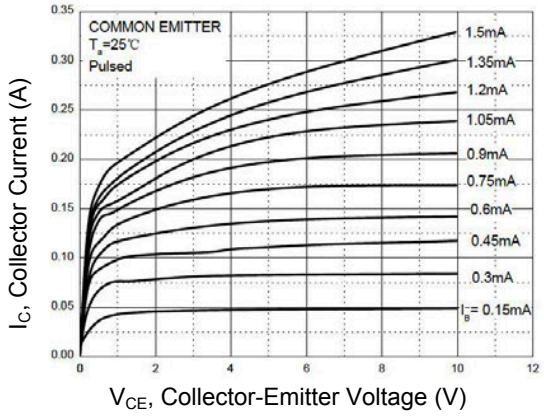


Figure 1. Collector Current vs. Collector - Emitter Voltage

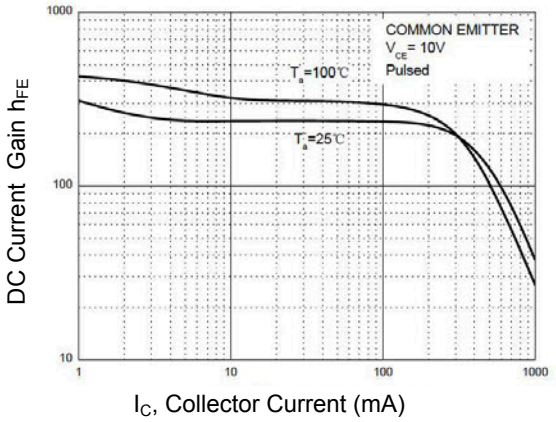


Figure 2. DC Current Gain vs Collector Current

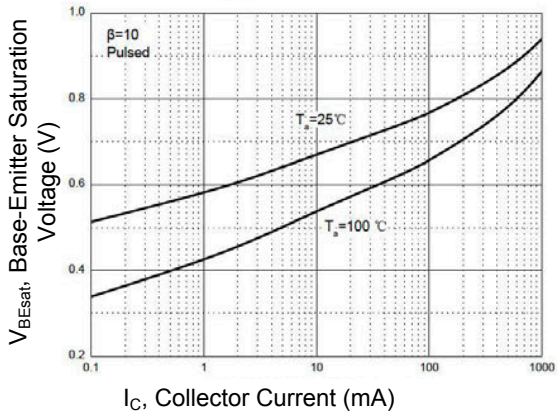


Figure 3. Base-Emitter Saturation Voltage vs. Collector Current

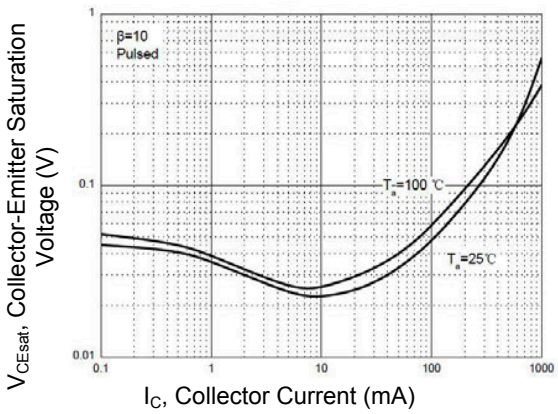


Figure 4. Collector-Emitter Saturation Voltage vs. Collector Current

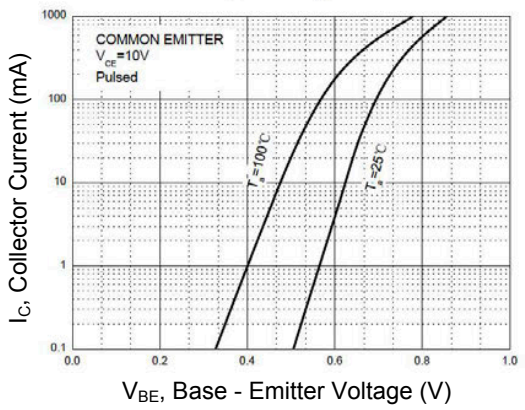


Figure 5. Collector Current vs. Base - Emitter Voltage

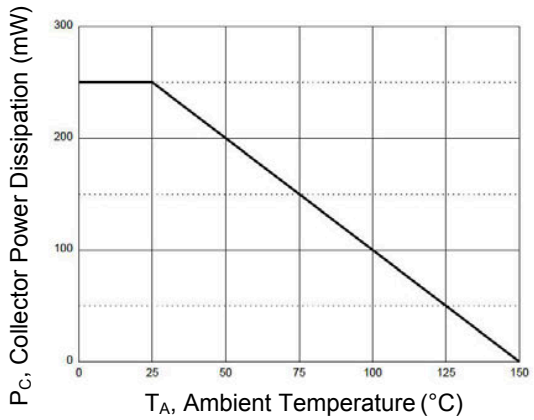


Figure 6. Power Dissipation vs Ambient Temperature

Typical Electrical and Thermal Characteristic Curves

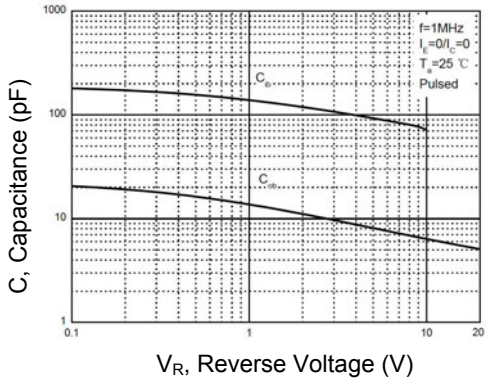
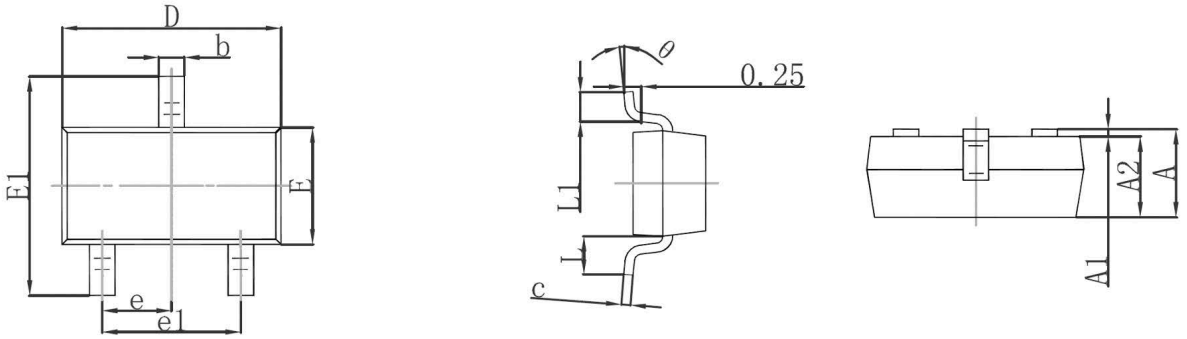


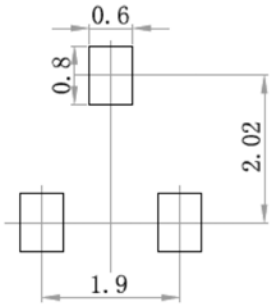
Figure 7. Capacitance Characteristics

Package Outline Dimensions (SOT-23)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Recommended Pad Layout



Note:
1. Controlling dimensions: in millimeters.
2. General tolerance: ±0.05mm.
3. The pad layout is for reference purposes only.

Order Information

Device	Package	Marking	Quantity	HSF Status
MMBT495	SOT-23	495	3,000pcs / Reel	RoHS Compliant