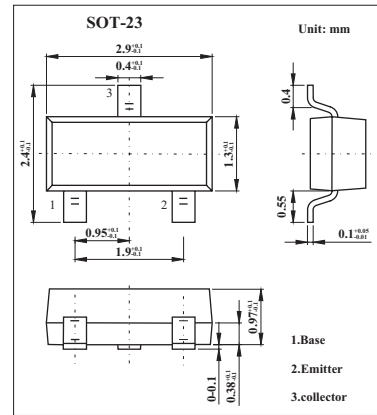
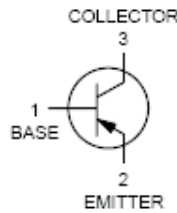


MMBT5088, MMBT5089

■ Features

- NPN general purpose amplifier



■ Absolute Maximum Ratings Ta = 25°C

Parameter	Symbol	MMBT5088	MMBT5089	Unit
Collector-emitter voltage	V _{CE0}	30	25	V
Collector-base voltage	V _{CBO}	35	30	V
Emitter-base voltage	V _{EBO}	4.5		V
Collector current	I _c	100		mA
Junction temperature	T _j	150		°C
Storage temperature	T _{stg}	-55 to +150		°C
Total device dissipation	P _D	625	350	mW
Derate above 25°C		5.0	2.8	mW/°C
Thermal resistance, junction to case	R _{θJC}	83.3		°C/W
Thermal resistance, junction to ambient	R _{θJA}	200	357	°C/W

MMBT5088, MMBT5089

■ Electrical Characteristics Ta = 25°C unless otherwise noted

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector-emitter breakdown voltage	MMBT5088	$V_{(BR)CEO}$ $I_C = 1.0\text{ mA}, I_B = 0$	30			V
	MMBT5089		25			
Collector-base breakdown voltage	MMBT5088	$V_{(BR)CBO}$ $I_C = 100\ \mu\text{A}, I_E = 0$	35			V
	MMBT5089		30			
Collector-cutoff current	MMBT5088	I_{CBO} $V_{CB} = 20\text{ V}, I_E = 0$			50	nA
	MMBT5089	I_{CBO} $V_{CB} = 15\text{ V}, I_E = 0$			50	nA
Emitter-base cut-off current		I_{EBO} $V_{EB} = 3.0\text{ V}, I_C = 0$			50	nA
		I_{EBO} $V_{EB} = 4.5\text{ V}, I_C = 0$			100	nA
DC current gain	MMBT5088	h_{FE} $I_C = 100\ \mu\text{A}, V_{CE} = 5.0\text{ V}$	300		900	
	MMBT5089		400		1200	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 10\text{ mA}, I_B = 1.0\text{ mA}$			0.5	V
Base-emitter saturation voltage	$V_{BE(on)}$	$I_C = 10\text{ mA}, V_{CE} = 5.0\text{ V}$			0.8	V
Current gain - bandwidth product	f_T	$I_C = 500\ \mu\text{A}, V_{CE} = 5.0\text{ mA}, f = 20\text{ MHz}$	50			MHz
Collector-base capacitance	C_{cb}	$V_{CB} = 5.0\text{ V}, I_E = 0, f = 100\text{ KHz}$			4.0	pF
Emitter-base capacitance	C_{eb}	$V_{BE} = 0.5\text{ V}, I_C = 0, f = 100\text{ KHz}$			10	pF
Small-signal current gain	MMBT5088	h_{fe} $I_C = 1.0\text{ mA}, V_{CE} = 5.0\text{ V}, f = 1.0\text{ KHz}$	350		1400	
	MMBT5089		450		1800	
Noise figure	MMBT5088	NF $I_C = 100\ \mu\text{A}, V_{CE} = 5.0\text{ V}, R_s = 10\text{K}\Omega, f = 10\text{ Hz to }15.7\text{kHz}$			3.0	dB
	MMBT5089				2.0	dB

■ hFE Classification

TYPE	MMBT5088	MMBT5089
Marking	1Q	1R