Single Bipolar Transistor

RoHS Compliant

Features

- Epitaxial planar die construction.

Absolute Maximum Ratings Ta = 25°C

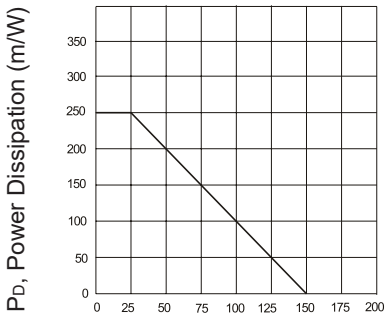
Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	75	V
Collector-Emitter Voltage	V_{CEO}	40	
Emitter - Base Voltage	V_{EBO}	6	
Collector Current - Continuous	I_C	600	mA
Power Dissipation	P_D	250	mW
Thermal resistance from junction to ambient	$R_{\theta JA}$	417	°C/W
Junction Temperature	T_J	150	°C
Operating and storage temperature range	T_{stg}	-55 to +150	

Electrical Characteristics (Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C= 100 μA, I_E = 0	75			V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 10 mA, I_B = 0	40			
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 100 μA, I_C = 0	6			
Collector cutoff current	I_{CBO}	V_{CB}=60V, I_E=0			100	nA
Collector cutoff current	I_{CEX}	V_{CE}=30V, V_{EB}(off)=-3V			10	
Emitter cut-off current	I_{EBO}	V_{EB}=3V, I_C=0			100	
DC current gain	h_{FE}	V_{CE}=10V, I_C= 0.1mA	40			
		V_{CE}=10V, I_C= 150mA	100		300	
		V_{CE}=10V, I_C= 500mA	42			
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=150 mA, I_B=15mA			0.3	V
		I_C=500 mA, I_B=50mA			1	
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C = 150 mA; I_B = 15 mA	0.6		1.2	
		I_C = 500 mA; I_B = 50 mA			2	
Transition frequency	f_T	I_C = 20 mA; V_{CE} = 20 V; f = 100 MHz	300			MHz
Delay time	t_d	V_{CC}=30V, $V_{BE(off)}$=-0.5V, I_C=150mA , I_{B1}= 15mA			10	ns
Rise time	t_r				25	
Storage time	t_s	V_{CC}=30V, I_C=150mA,I_{B1}=-I_{B2}=15mA			225	
Fall time	t_f				60	

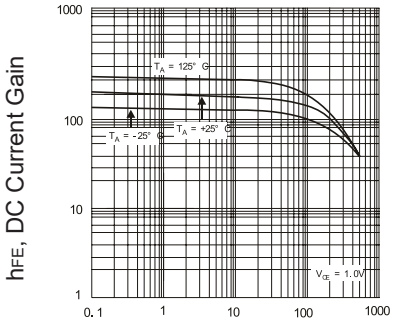
* pulse test: Pulse Width ≤300μs, Duty Cycle≤ 2.0%

Typical Characterisitics



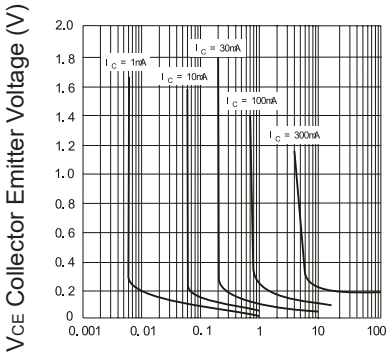
TA, Ambient Temperature (°C)

Fig 1, Max Power Dissipation vs Ambient temperature



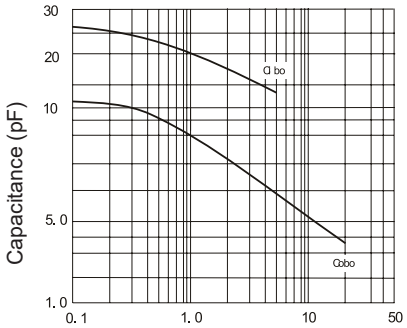
IC, Collector Current (mA)

Fig 2, Typical DC Current Gain vs Collector Current



IB, Base Current (mA)

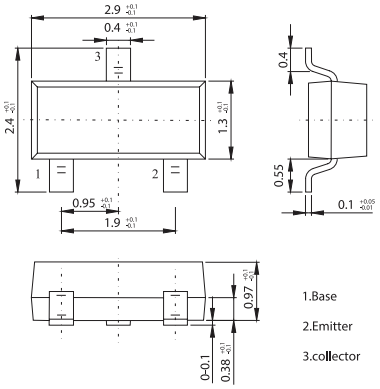
Fig. 4 Typical Collector Saturation Region



Reverse Volts (V)

Fig. Typical Capacitance

Diagram



Part Number Table

Description	Part Number
Single Bipolar Transistor, NPN, 0.6A, 40V, SOT 23	MMBT2222A

Dimensions : Millimetres