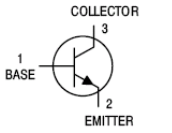
NPN General Purpose Amplifier

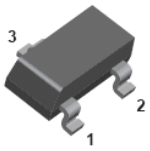
Features:

- Epitaxial planar die construction.
- Complementary PNP type available MMBT2907A.
- Ultra-small surface mount package.

Applications:

- Use as a medium power amplifier.
- Switching requiring collector currents up to 500mA.





SOT-23

Maximum Rating @ T_A = 25°C unless otherwise specified

Parameter	Symbol	Value	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
Collector Dissipation	P_C	300	mW
Thermal resistance junction to ambient	$R_{\theta JA}$	417	°C/W
Junction and Storage Temperature	T_j, T_{stg}	-55 to +150	°C

Electrical Characteristics @ T_A = 25°C unless otherwise specified

Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C = 10μA, I_E = 0	75			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C = 10mA, I_B = 0	40			
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E = 10μA, I_C = 0	6			
Collector cut-off current	I_{CBO}	V_{CB} = 60V, I_E = 0			0.01	μA
Collector cut-off current	I_{CEX}	V_{CE} = 60V, $V_{EB(off)}$ = 3V				
Emitter cut-off current	I_{EBO}	V_{EB} = 3V, I_C = 0				
DC current gain	h_{FE}	V_{CE} = 10V, I_C = 150mA	100		300	
		V_{CE} = 10V, I_C = 0.1mA	35			
		V_{CE} = 10V, I_C = 1mA	50			
		V_{CE} = 10V, I_C = 10mA	75			
		V_{CE} = 10V, I_C = 500mA	40			
		V_{CE} = 1V, I_C = 150mA	50			

Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C = 500mA, I_B = 50mA I_C = 150mA, I_B = 15mA			1 0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C = 500mA, I_B = 50mA I_C = 150mA, I_B = 15mA		0.6	2 1.2	
Transition frequency	f_T	V_{CE} = 20V, I_C = 20mA f = 100MHz	300			MHz
Output capacitance	C_{obo}	V_{CB} = 10V, I_E = 0, f = 1MHz		8		pF
Input capacitance	C_{ibo}	V_{EB} = 0.5V, I_C = 0, f = 1MHz		25		
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	

Typical Characteristics @ T_A = 25°C unless otherwise specified

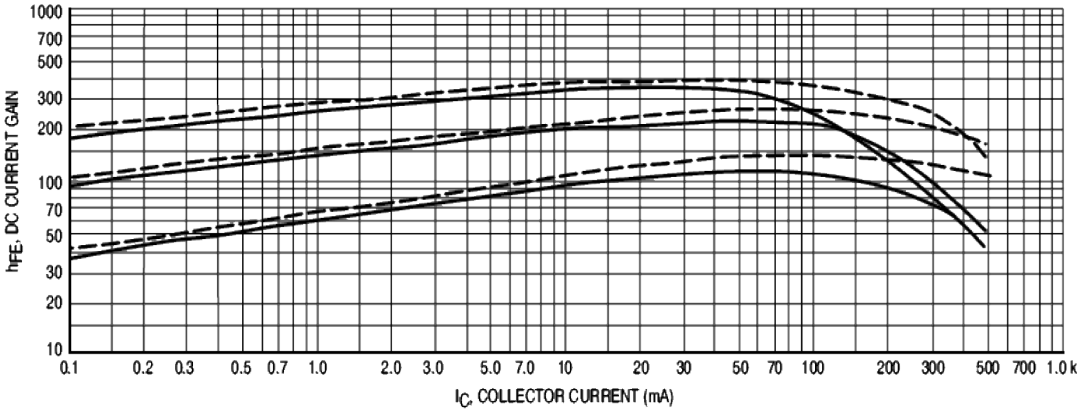


Figure 1. DC Current Gain

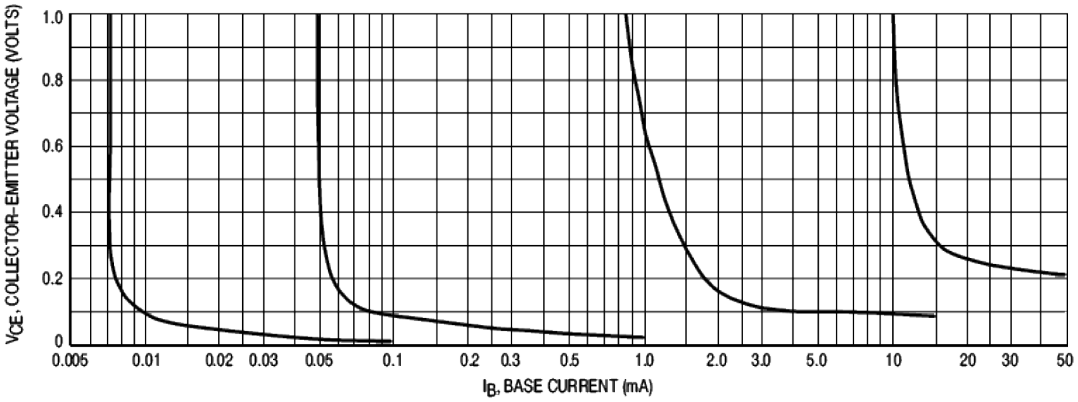
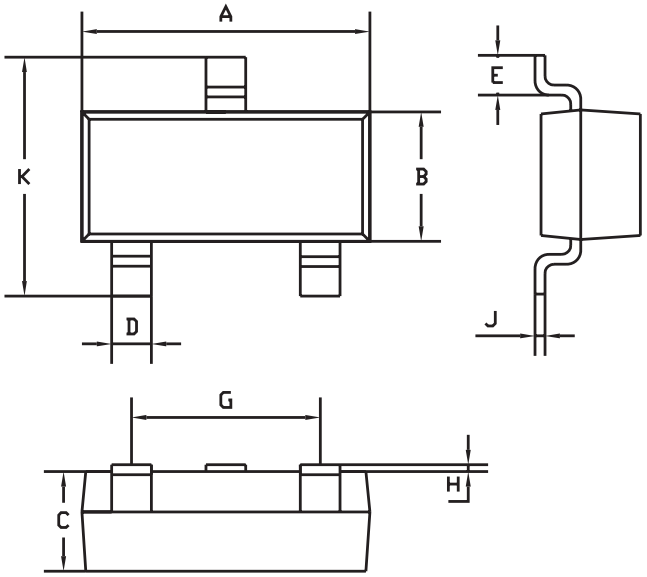


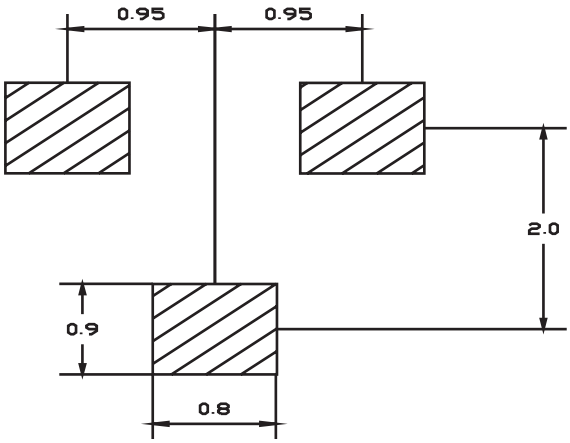
Figure 2. Collector Saturation Region

Package Outline



SOT-23		
Dim	**Min**	**Max**
A	2.85	2.95
B	1.25	1.35
C	1Typical	
D	0.37	0.43
E	0.35	0.48
G	1.85	1.95
H	0.02	0.1
J	0.1Typical	
K	2.35	2.45
All Dimensions in mm		

Soldering Footprint



Dimensions : Millimetres

Part Number Table

Description	Part Number
Transistor, Bipolar, NPN, 40V, 600mA, SOT-23	MMBT2222A-7-F