

**MMBT2222A**
**SOT-23 Plastic-Encapsulate Transistors**

TRANSISTOR (NPN)

Ver1.0

**FEATURES**

- Epitaxial planar die construction
- Complementary NPN Type available(MMBT2222A)

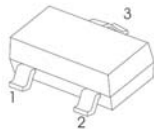
**MARKING: BA**s

**MAXIMUM RATINGS (Ta=25°C unless otherwise noted)**

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	75	V
$V_{CEO}$	Collector-Emitter Voltage	40	V
$V_{EBO}$	Emitter-Base Voltage	6	V
$I_C$	Collector Current -Continuous	600	mA
$P_C$	Collector Dissipation	250	mW
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	500	°C/W
$T_J$	Junction Temperature	150	°C
$T_{stg}$	Storage Temperature	-55to+150	°C

**SOT-23**

1. BASE
2. EMITTER
3. COLLECTOR


**ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 10\mu A, I_E = 0$	75			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}^*$	$I_C = 10mA, I_B = 0$	40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 10\mu A, I_C = 0$	6			V
Collector cut-off current	$I_{CBO}$	$V_{CB} = 60V, I_E = 0$			0.01	$\mu A$
Collector cut-off current	$I_{CEX}$	$V_{CE} = 30V, V_{BE(off)} = 3V$			0.01	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 3V, I_C = 0$			0.1	$\mu A$
DC current gain	$h_{FE(1)}^*$	$V_{CE} = 10V, I_C = 150mA$	100		300	
	$h_{FE(2)}$	$V_{CE} = 10V, I_C = 0.1mA$	40			
	$h_{FE(3)}^*$	$V_{CE} = 10V, I_C = 500mA$	42			
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	$V_{BE(sat)}^*$	$I_C = 500mA, I_B = 50mA$ $I_C = 150mA, I_B = 15mA$			2.0 1.2	V
Transition frequency	$f_T$	$V_{CE} = 20V, I_C = 20mA,$ $f = 100MHz$	300			MHz
Delay time	$t_d$	$V_{CC} = 30V, V_{BE(off)} = -0.5V$			10	nS
Rise time	$t_r$	$I_C = 150mA, I_{B1} = 15mA$			25	nS
Storage time	$t_s$	$V_{CC} = 30V, I_C = 150mA$			225	nS
Fall time	$t_f$	$I_{B1} = -I_{B2} = 15mA$			60	nS

 \*pulse test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2.0\%$ .

Typical Characteristics

MMBT2907A

