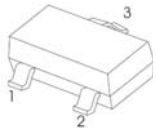
TRANSISTOR(NPN)

SOT-23



1. BASE
2.EMITTER
3.COLLECTOR

FEATURES

- **Epitaxial planar die construction**
- **Complementary PNP Type available(MMBT2907A)**

MARKING: 1P

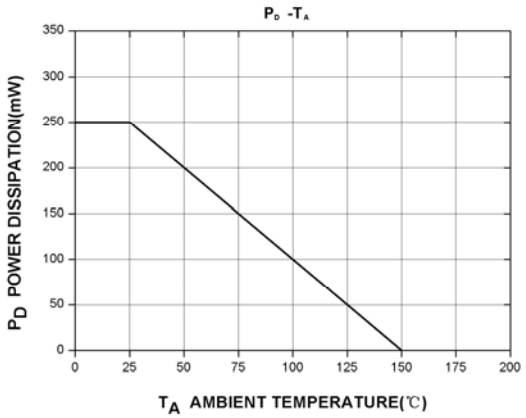
MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

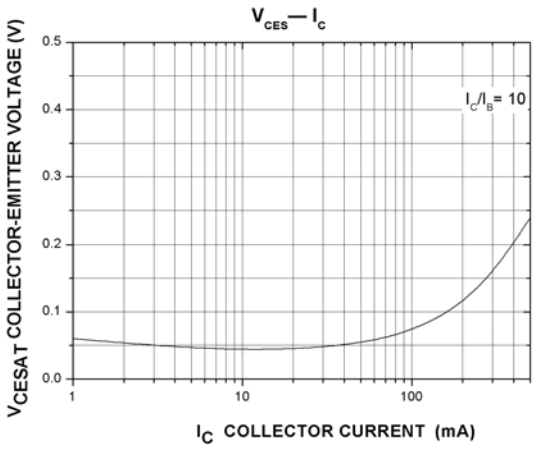
Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	75	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current -Continuous	600	mA
P_C	Collector Dissipation	250	mW
$R_{\Theta JA}$	Thermal Resistance, Junction to Ambient	500	℃/W
T_J	Junction Temperature	150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

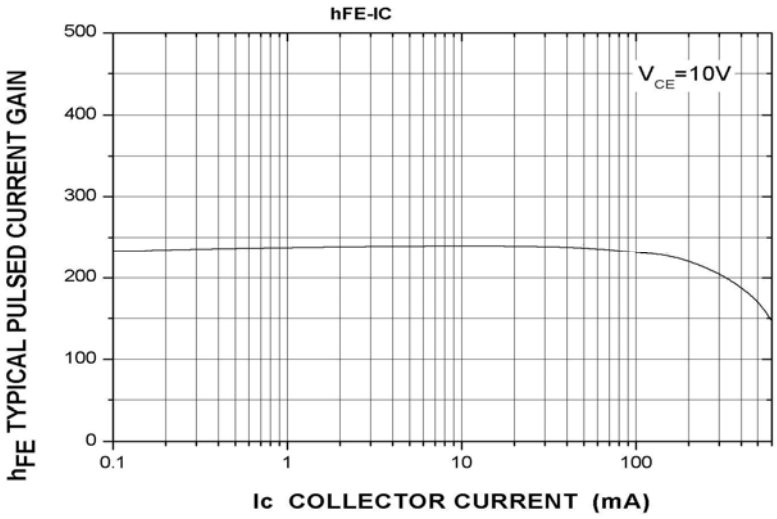
ELECTRICAL CHARACTERISTICS (Ta=25℃ unless otherwise specified)

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			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=10μA, I_C=0	6			V
Collector cut-off current	I_{CBO}	V_{CB}=60V, I_E=0			0.01	μA
Collector cut-off current	I_{CEX}	V_{CE}=30V,$V_{BE(off)}$=3V			0.01	μA
Emitter cut-off current	I_{EBO}	V_{EB}= 3V, I_C=0			0.1	μA
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=500 mA, I_B= 50mA I_C=150 mA, I_B=15mA			1 0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$*	I_C=500 mA, I_B= 50mA I_C=150 mA, 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 I_C=150mA , I_{B1}= 15mA			10	nS
Rise time	t_r				25	nS
Storage time	t_S	V_{CC}=30V, I_C=150mA I_{B1}=-I_{B2}=15mA			225	nS
Fall time	t_f				60	nS

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


P_D -T_A
P_D POWER DISSIPATION(mW)
350
300
250
200
150
100
50
0
0
25
50
75
100
125
150
175
200
T_A AMBIENT TEMPERATURE(℃)


V_CES— I_C
V_CESAT COLLECTOR-EMITTER VOLTAGE (V)
0.5
0.4
0.3
0.2
0.1
0.0
I_C/I_B= 10
1
10
100
I_C COLLECTOR CURRENT (mA)


hFE-IC
h_FE TYPICAL PULSED CURRENT GAIN
500
400
300
200
100
0
V_CE=10V
0.1
1
10
100
Ic COLLECTOR CURRENT (mA)