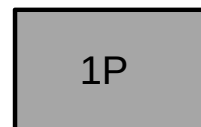
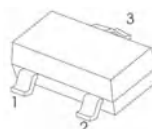




FEATURES

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

SOT-23



1.BASE
2.EMITTER
3.COLLECTOR

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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

Parameter	Symbol	Value	Unit
Collector–Base Voltage	V_{CBO}	75	V
Collector–Emitter Voltage	V_{CEO}	40	V
Emitter–Base Voltage	V_{EBO}	6	V
Collector Current — Continuous	I_C	600	mA
Collector Power Dissipation	P_C	300	mW
Thermal Resistance From Junction To Ambient	R_{thJA}	417	°C/W
Operation Junction and Storage Temperature Range	T_J, T_{stg}	-55~+150	°C

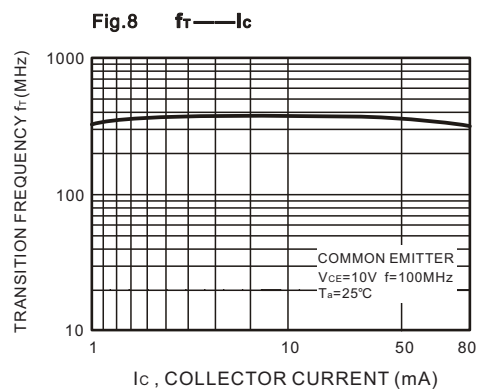
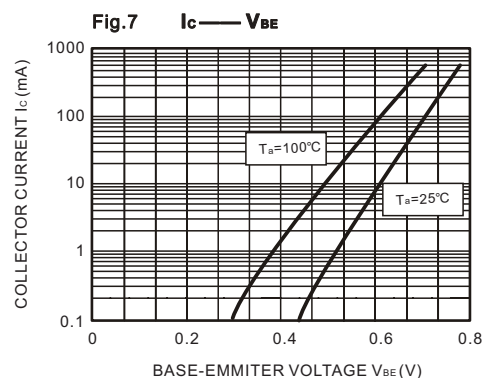
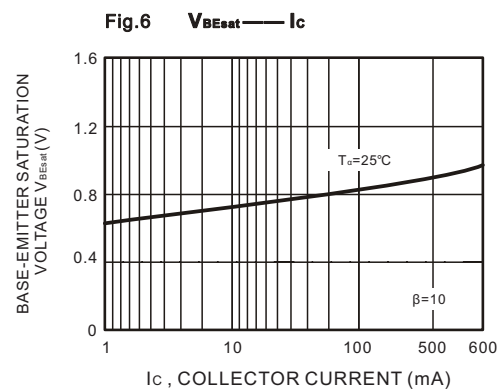
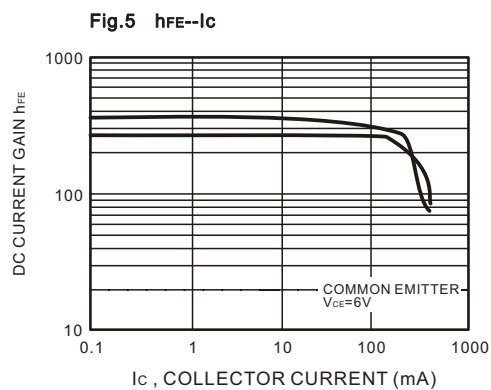
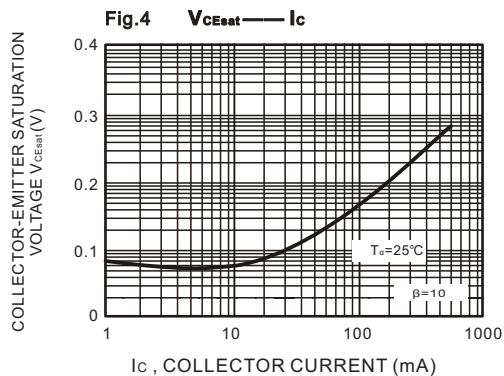
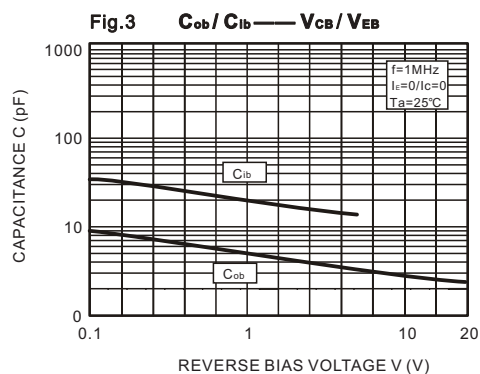
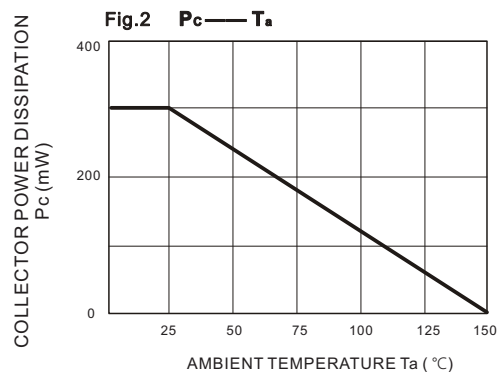
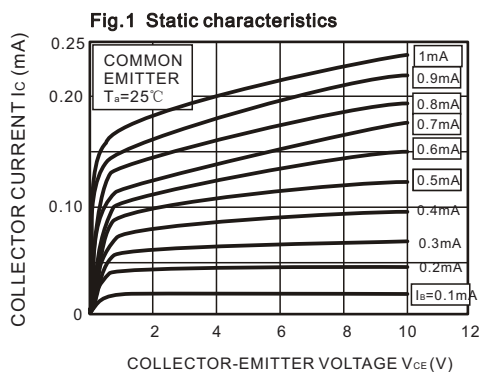
CLASSIFICATION OF h_{FE}

Rank	L	H
Range	100-200	200-300
Marking	1P	

ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted.)

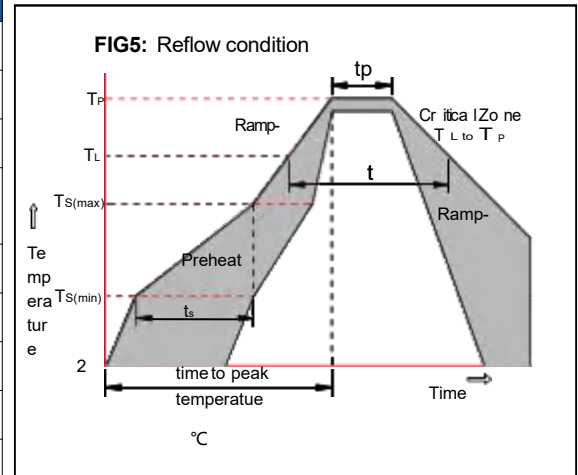
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 10\mu A, I_E = 0$	75			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 10\text{ mA}, I_B = 0$	40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 10\mu A, I_C = 0$	6			V
Collector cut-off current	I_{CBO}	$V_{CB} = 60V, I_E = 0$			0.01	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_{FE1}	$V_{CE} = 10V, I_C = 150mA$	100		300	
	h_{FE2}	$V_{CE} = 10V, I_C = 0.1mA$	40			
	h_{FE3}	$V_{CE} = 10V, I_C = 500mA$	42			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 500mA, I_B = 50mA$			1.0 0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 150mA, I_B = 15mA$			2.0 1.2	V
Transition frequency	f_T	$V_{CE} = 20V, I_C = 20mA, f = 100MHz$	300			MHz
Delay time	t_d	$V_{CC} = 30V, V_{BE(off)} = -0.5V, I_C = 150mA, I_{B1} = 15mA$			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

RATING AND CHARACTERISTIC CURVES



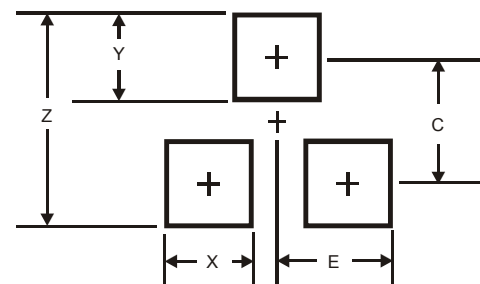
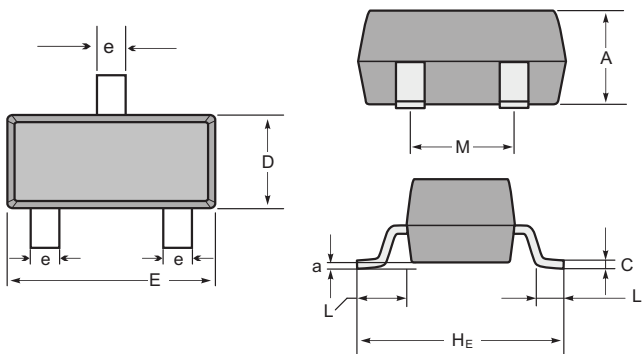
Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_P)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C



Package Dimensions & Suggested Pad Layout

SOT23



SOT-23 mechanical data

UNIT	A	C	D	E	H _E	e	M	L	L ₁	a
mm	max	1.1	0.15	1.4	3.0	2.6	0.5	1.95	0.55 (ref)	0.36 (ref)
	min	0.9	0.08	1.2	2.8	2.2	0.3	1.7		0.15
mil	max	43	6	55	118	102	20	77	22 (ref)	14 (ref)
	min	35	3	47	110	87	12	67		6

Dimensions	SOT23
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

Tape & reel specification

Technical drawing of a tape reel showing top, side, and cross-sectional views with dimensions.

Top View: Shows a rectangular tape reel with dimensions E , F , W , $P0$, $P2$, $P1$, $\varnothing D0$, and $\varnothing D1$.

Side View: Shows the profile of the reel with dimensions T , $B0$, and $K0$.

Cross-section A-A: Shows the internal structure with dimension $A0$.

Cross-section B-B: Shows the internal structure with dimension $K0$.

Symbol	Dimension (mm)
P0	4.00±0.10
P1	4.00±0.10
P2	2.00±0.10
D0	1.55±0.10
D1	1.05±0.10
E	1.55±0.10
F	3.60±0.10
W	8.00±0.10
A0	3.80±0.20
B0	3.25±0.20
K0	1.45±0.10
T	0.25±0.05
D2	178.0±3.0
D3	55Min.
D4	R24.0±3.0
G	R82.0±3.0
I	13.0±2.0
W1	11.0±3.0

Quantity: 3000PCS