

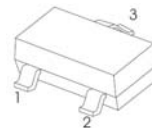
FEATURES

- Epitaxial Planar Die Construction
- Complementary NPN Types Available (MMBTA05 / MMBTA06)
- Ideal for Low Power Amplification and Switching

MMBTA55 Marking: 2H

MMBTA56 Marking: 2GM

SOT-23



- 1.BASE
- 2.EMITTER
- 3.COLLECTOR

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	MMBTA55	MMBTA56	Unit
Collector-Base Voltage	V _{CBO}	-60	-80	V
Collector-Emitter Voltage	V _{CEO}	-60	-80	V
Emitter-Base Voltage	V _{EBO}	-4.0		V
Collector Current - Continuous	I _C	-500		mA
Power Dissipation	P _d	300		mW
Thermal Resistance, Junction to Ambient	R _{θJA}	417		°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150		°C

Electrical Characteristics $T_a = 25^\circ\text{C}$

Characteristic		Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	MMBTA55 MMBTA56	$V_{(BR)CBO}$	-60 -80	—	V	$I_C = -100\mu\text{A}$, $I_E = 0$
Collector-Emitter Breakdown Voltage	MMBTA55 MMBTA56	$V_{(BR)CEO}$	-60 -80	—	V	$I_C = -1.0\text{mA}$, $I_B = 0$
Emitter-Base Breakdown Voltage		$V_{(BR)EBO}$	-4.0	—	V	$I_E = -100\mu\text{A}$, $I_C = 0$
Collector Cutoff Current	MMBTA55 MMBTA56	I_{CBO}	—	-100	nA	$V_{CB} = -60\text{V}$, $I_E = 0$ $V_{CB} = -80\text{V}$, $I_E = 0$
Collector Cutoff Current	MMBTA55 MMBTA56	I_{CEX}	—	-100	nA	$V_{CE} = -60\text{V}$, $I_{BO} = 0\text{V}$ $V_{CE} = -80\text{V}$, $I_{BO} = 0\text{V}$
ON CHARACTERISTICS						
DC Current Gain		h_{FE}	100	—	—	$I_C = -10\text{mA}$, $V_{CE} = -1.0\text{V}$ $I_C = -100\text{mA}$, $V_{CE} = -1.0\text{V}$
Collector-Emitter Saturation Voltage		$V_{CE(SAT)}$	—	-0.25	V	$I_C = -100\text{mA}$, $I_B = -10\text{mA}$
Base-Emitter Saturation Voltage		$V_{BE(SAT)}$	—	-1.2	V	$I_C = -100\text{mA}$, $V_{CE} = -1.0\text{V}$
SMALL SIGNAL CHARACTERISTICS						
Current Gain-Bandwidth Product		f_T	50	—	MHz	$V_{CE} = -1.0\text{V}$, $I_C = -100\text{mA}$, $f = 100\text{MHz}$

RATING AND CHARACTERISTIC CURVES

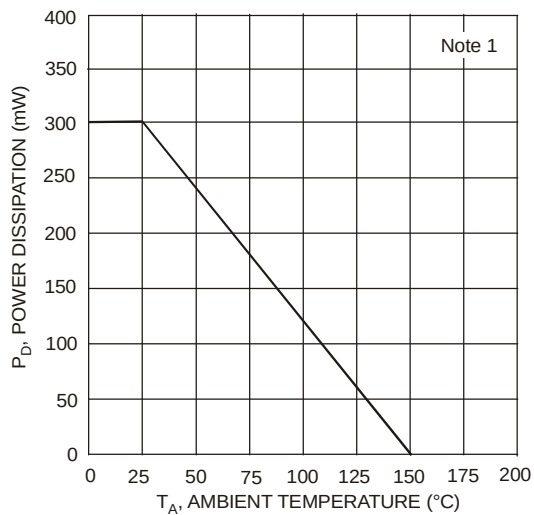


Fig. 1 Max Power Dissipation vs Ambient Temperature

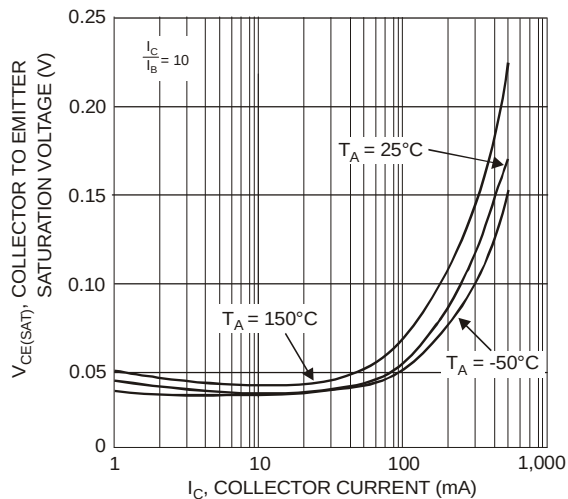


Fig. 2 Collector Emitter Saturation Voltage vs. Collector Current

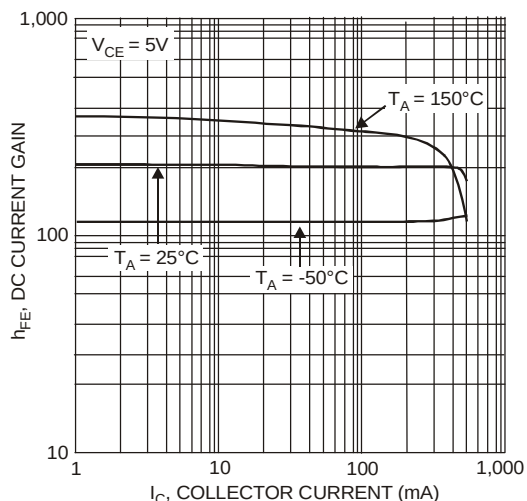


Fig. 3 DC Current Gain vs. Collector Current

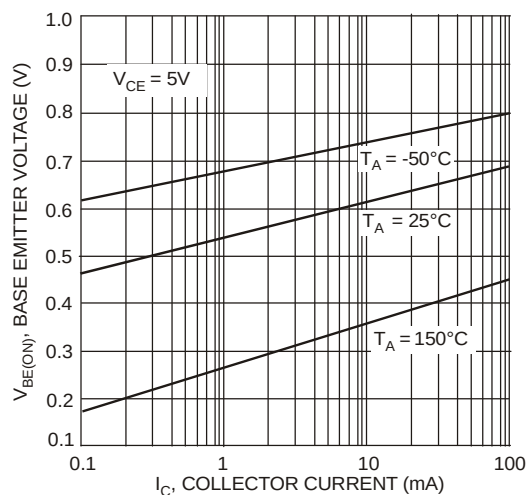
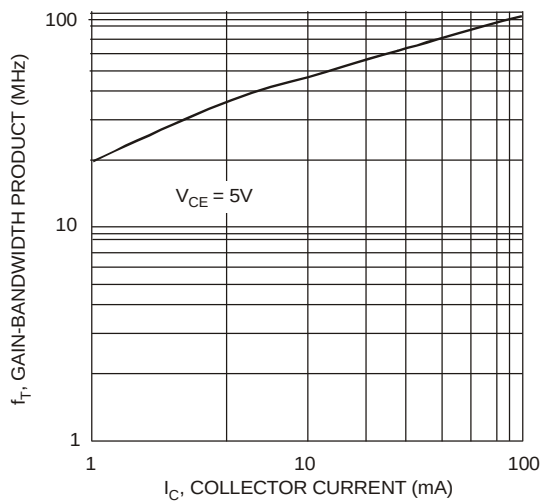
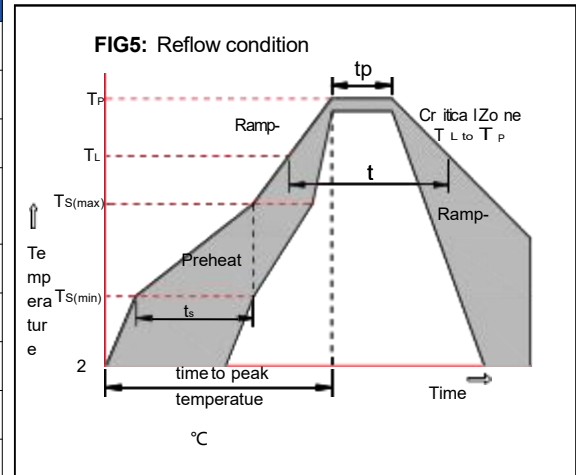


Fig. 4 Base Emitter Voltage vs. Collector Current



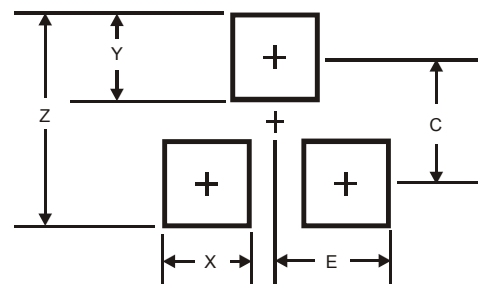
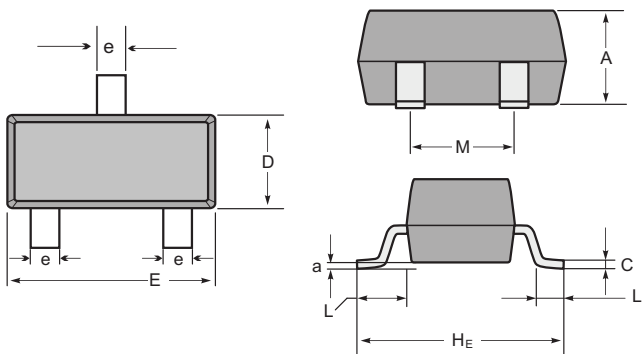
Soldering parameters

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

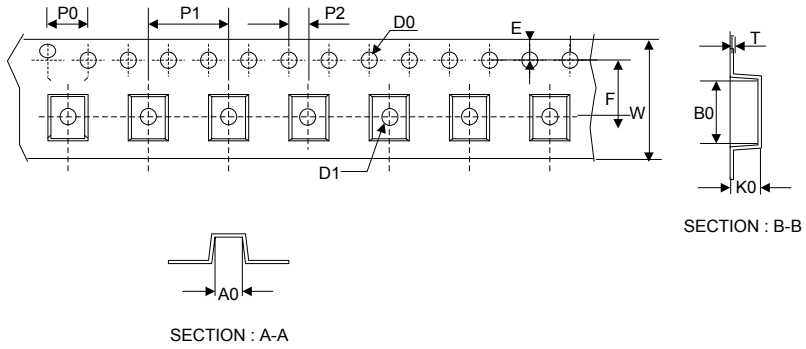
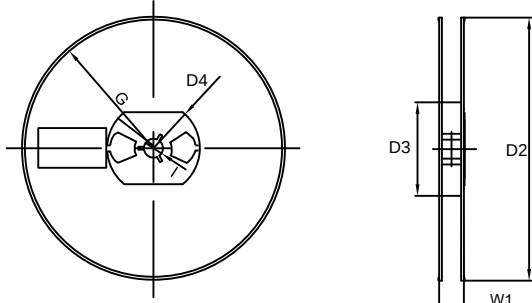


SOT-23 mechanical data

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

Tape		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.
7" Reel		D4	R24.0±3.0
		G	R82.0±3.0
		I	13.0±2.0
		W1	11.0±3.0
		Quantity: 3000PCS	