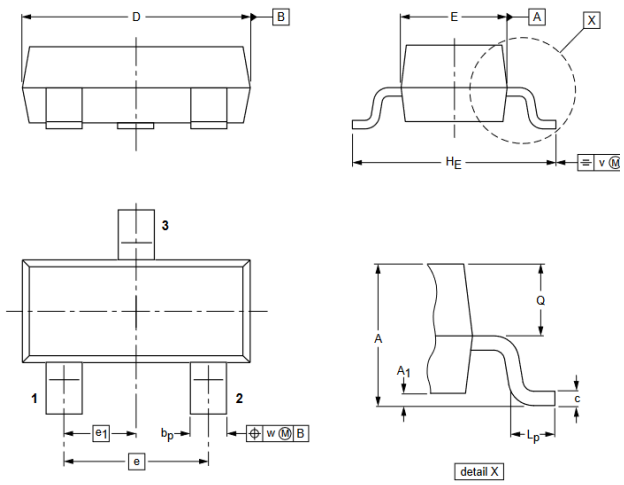
NPN Bipolar Transistor

Primary characteristics			
Symbol	**Parameter**	**Value**	**Unit**
I_C	Continuous collector current	600	mA
V_{CEO}	Collector-emitter voltage	160	V

Features

- **SOT-23** case for easy automatic insertion
- Pb-free and **RoHS** compliant
- Epitaxial planar die construction

Case dimensions



1 – Gate; 2 – Source; 3 - Drain

SOT-23 (TO-236AB)

Unit	A	A_1max	b_p	c	D	E	e	e_1	H_E	L_p	Q	v	w
mm	1.0 ±0.1	0.1	0.43 ±0.05	0.12 ±0.03	2.9 ±0.1	1.3 ±0.1	1.9	0.95	2.3 ±0.2	0.3 ±0.15	0.5 ±0.05	0.2	0.1

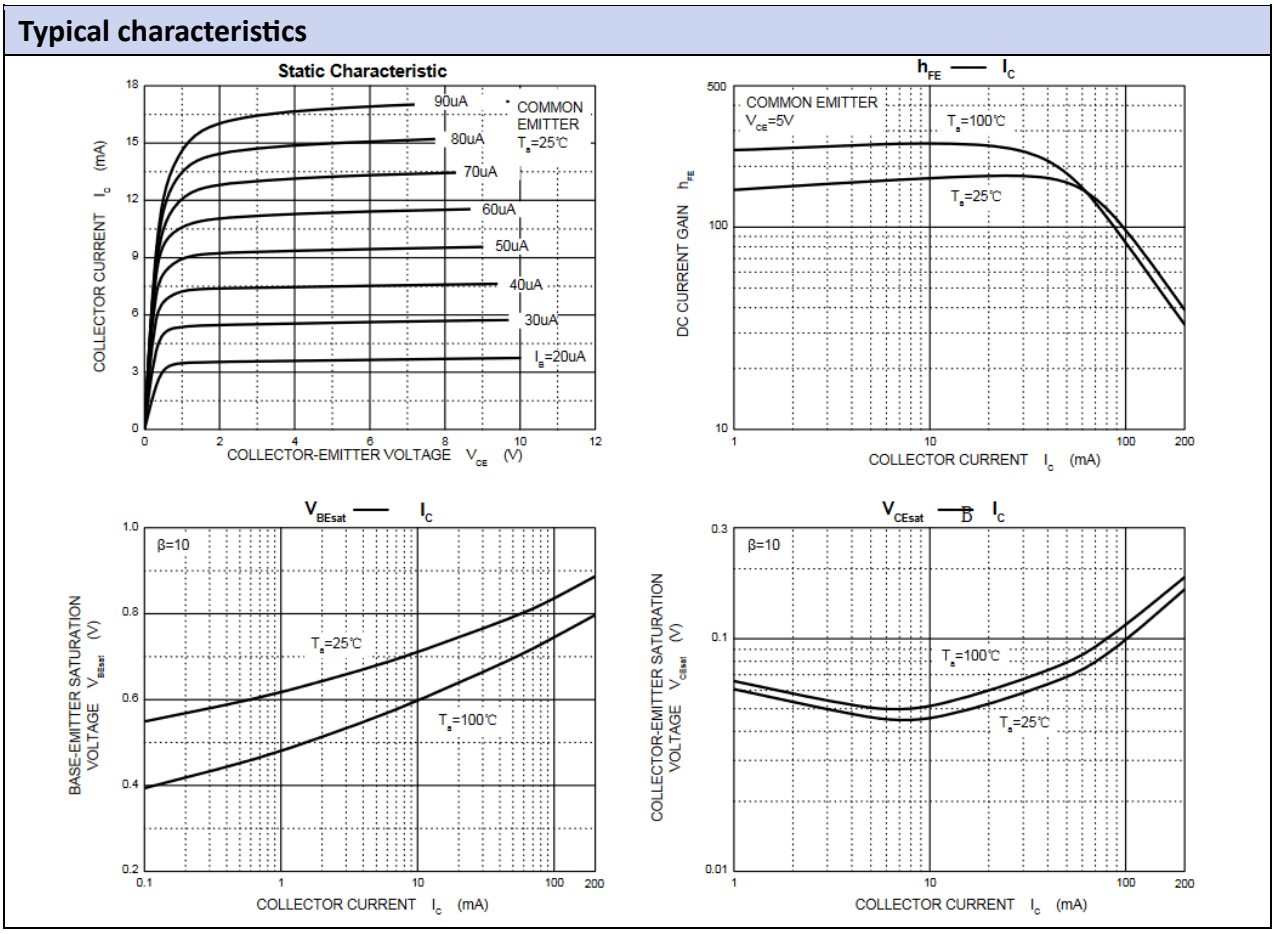
Absolute maximum ratings (T_A = 25°C unless otherwise noted)			
Characteristic	**Symbol**	**Value**	**Unit**
Collector-base voltage	V_{CBO}	180	V
Collector-emitter voltage	V_{CEO}	160	V
Emitter-base voltage	V_{EBO}	6.0	V
Continuous collector current	I_C	600	mA
Total power dissipation	P_D	300	mW
Operating junction temperature range	T_J, T_{STG}	-55 ~ 150	°C

Electrical characteristics (T_A = 25°C)

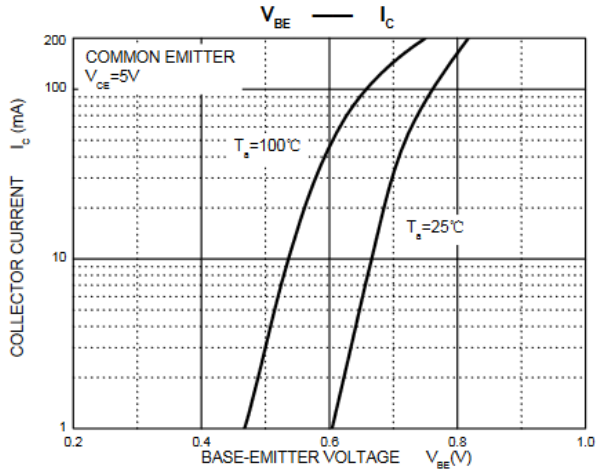
Characteristic	Test condition	Symbol	Value			Unit
			Min.	Typ.	Max.	
Collector-base breakdown voltage	I_E=0V, I_C=100μA	$V_{(BR)CBO}$	180	-	-	V
Collector-emitter breakdown voltage[1)]	I_C=1.0mA, I_B=0V	$V_{(BR)CEO}$	160	-	-	V
Emitter-base breakdown voltage	I_E=10μA, I_C=0	$V_{(BR)EBO}$	6.0	-	-	V
Collector cut-off current	V_{CB}=120V, I_E=0	I_{CBO}	-	-	50	nA
Emitter cut-off current	V_{EB}=4.0V, I_C=0	I_{EBO}	-	-	50	nA
DC current gain[1)]	V_{CE}=5.0V, I_C=1.0mA	$h_{FE(1)}$	80	-	-	
	V_{CE}=5.0V, I_C=10mA	$h_{FE(2)}$	100	-	300	
	V_{CE}=5.0V, I_C=50mA	$h_{FE(3)}$	50	-	-	
Collector-emitter saturation voltage[1)]	I_C=50mA, I_B=5.0mA	$V_{CE(sat)}$	-	-	500	mV
Base-emitter saturation voltage[1)]	I_C=50mA, I_B=5.0mA	$V_{BE(sat)}$	-	-	1.0	V
Transition frequency	V_{CE}=10V, I_C=10mA, f=100MHz	f_T	100	-	-	MHz

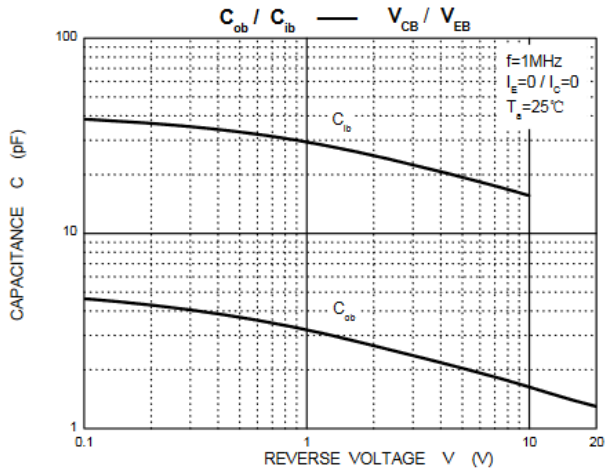
[1)] Pulse test: pulse width=300μs, duty cycle=2.0%

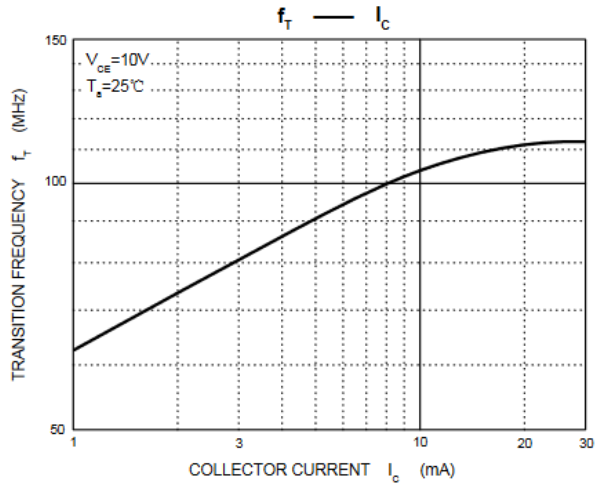
Typical characteristics

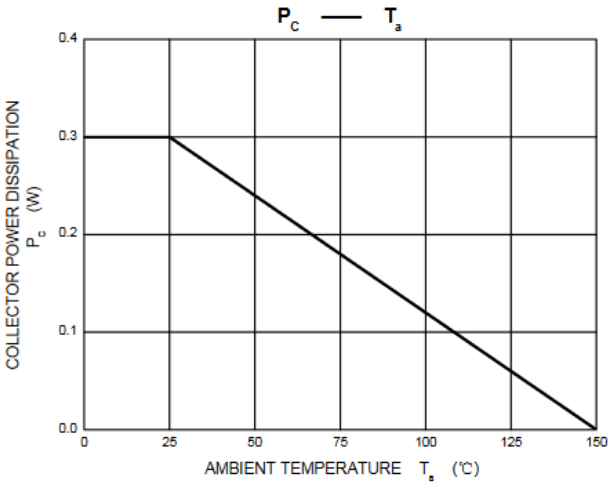


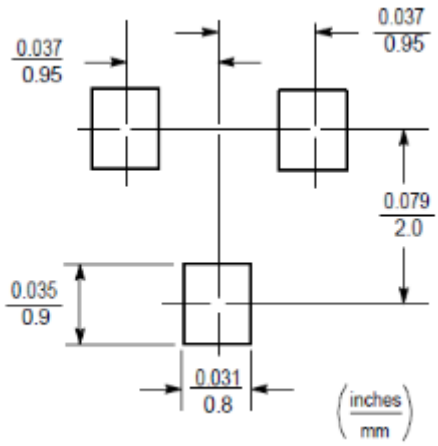
Typical characteristics









Suggested soldering pad layout

SOT-23

Ordering information				
Part Number	**Package**	**Marking**	**Shipping Quantity**	**Dimensions**
MMBT5551	SOT-23	G1	**3000 pcs / 7”reel**	---

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