

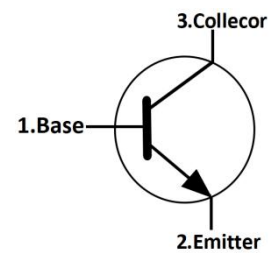
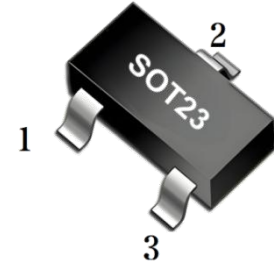


MMBT1815

NPN SILICON TRANSISTOR

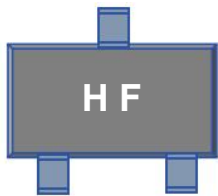
FEATURES

- *Collector-Emitter Voltage: $V_{CEO}=50V$
- *Collector Current up to 150mA
- *High h_{FE} Linearity
- *Complement to MMBT1015



MARKING

Type Code: Marking: HF



ABSOLUTE MAXIMUM RATINGS (Tc=25°C, unless otherwise specified)

SYMBOL	PARAMETER	VALUE	UNIT
V _{CB0}	Collector-base voltage	60	V
V _{CEO}	Collector-emitter voltage	50	V
V _{EBO}	Emitter-base voltage	5	V
I _c	Collector current	150	mA
I _B	Base Current	50	mA
P _c	Collector Dissipation	250	mW
T _j	Junction Temperature	150	°C
T _{stg}	Storage Temperature	-55~150	°C
R _{θJA}	Thermal Resistance From Junction To Ambient	625	°C/W

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.



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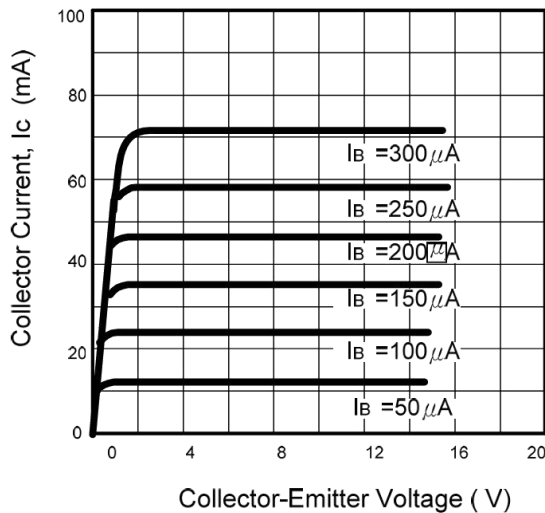
ELECTRICAL CHARACTERISTICS (Tc=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu A, I_E=0$	50			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=10mA, I_B=0$	50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	5			V
Collector cutoff current	I_{CBO}	$V_{CB}=60V, I_E=0$			100	nA
Emitter cut-off current	I_{EBO}	$V_{EB}=5V, I_C=0$			100	nA
DC Current Gain (CLASSIFICATION OF hFE)	h_{FE}	$V_{CE}=6V, I_C=2mA$	A	120	240	
			B	200	400	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=100mA, I_B=10mA$		0.1	0.25	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=100mA, I_B=10mA$			1.0	V
Transition frequency	f_T	$V_{CE}=10V, I_C=50mA$	80			MHz
Output Capacitance	C_{OB}	$V_{CB}=10V, I_E=0, f=1MHz$		2.0	3.0	pF
Noise Figure	NF	$I_C=0.1mA, V_{CE}=6V$ $R_G=10k, f=100Hz$		1.0	1.0	dB

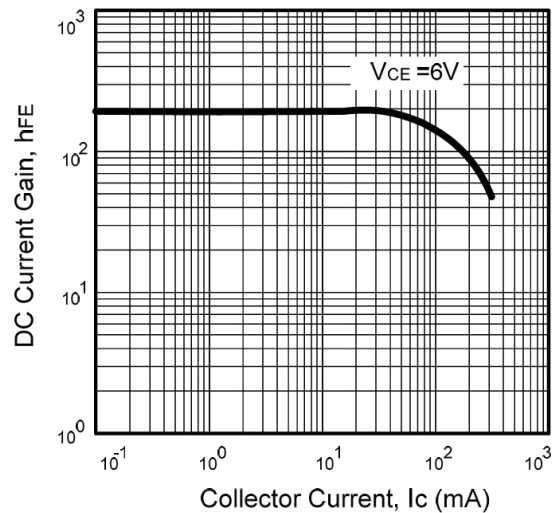
Note: Pulse test: Pulse Width <300μs, Duty Cycle<2%.

TYPICAL CHARACTERISTICS

Static Characteristics



DC Current Gain



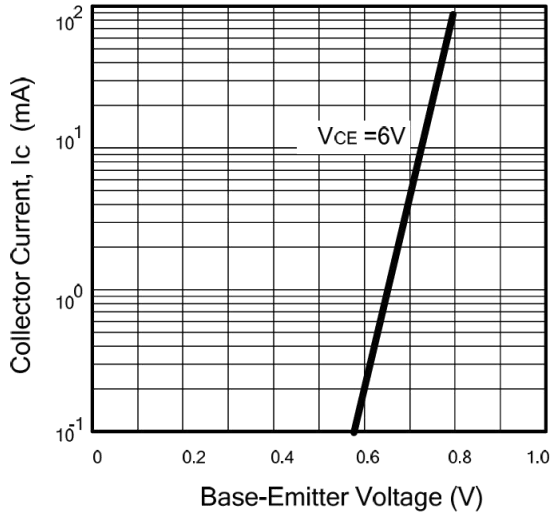


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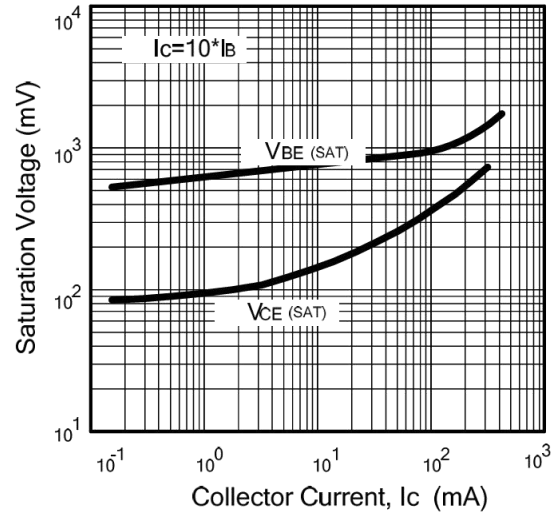
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TYPICAL CHARACTERISTICS(Con.t)

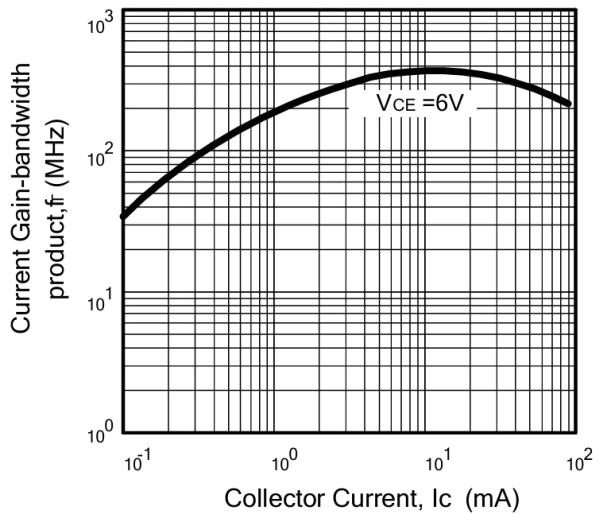
Base-Emitter On Voltage



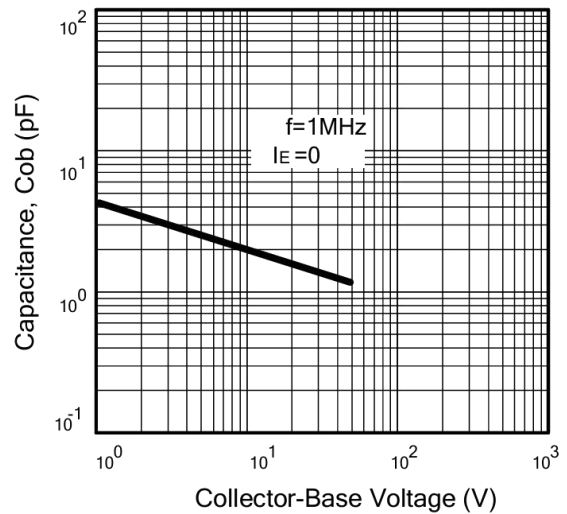
Saturation Voltage



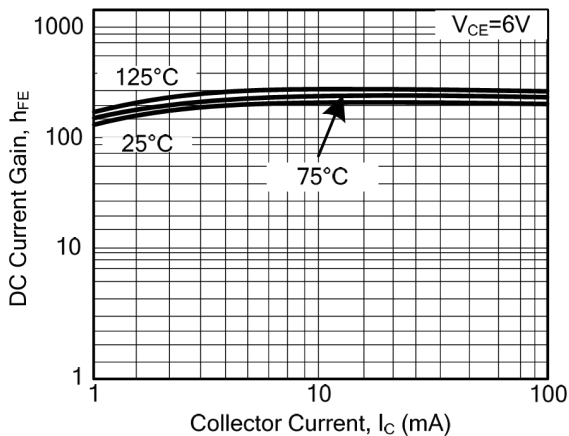
Current Gain-Bandwidth Product



Collector Output Capacitance



DC Current Gain vs. Collector Current





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NPN SILICON TRANSISTOR

SOT23 PACKAGE OUTLINE DIMENSIONS

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Note:
1. Controlling dimension: in millimeters.
2. General tolerance: ±0.05mm.
3. The pad layout is for reference purposes only.

REEL PACKING

Top cover tape thickness
0.10 mm (0.004") max. thick

Embossed carrier tape

Trailer Tape
50±2 Empty Pockets

Components

Leader Tape
100±2 Empty Pockets

Dimensions are in millimeter										
PKG TYPE	A	B	C	d	E	F	Po	P	P1	W
SOT-23	3.15	2.77	1.22	Φ1.50	1.75	3.50	4.00	4.00	2.00	8.00
Reel Optiom	D	D1	D2	G	H	I	W1	W2	Q.TY PER REEL	
7" Dia	Φ178.0	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30	3000PCS	
13" Dia	φ330.0	/	13.00	/	/	R6.50	9.50	12.30	10000PCS	