

-3A / -12V Bipolar transistor

2SB1713

●Applications

Low frequency amplification, driver

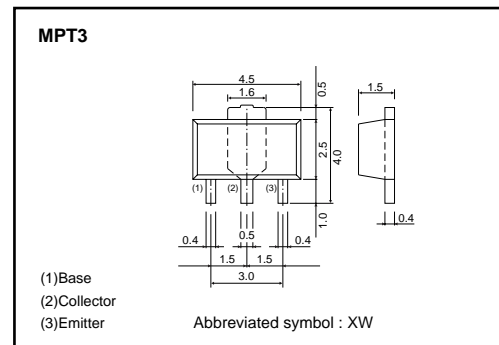
●Features

- 1) Collector current is high.
- 2) Low collector-emitter saturation voltage.
(Typ. = -250mV, at $I_C = -1.5A$, $I_B = -30mA$)

●Structure

PNP epitaxial planar silicon transistor

●External dimensions (Unit : mm)



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CB0}	-15	V
Collector-emitter voltage	V_{CE0}	-12	V
Emitter-base voltage	V_{EB0}	-6	V
Collector current	DC	I_C	-3
	Pulse	I_{CP}	-6 *1
Power dissipation	P_C	0.5 *2	W
		2 *3	
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

*1 $P_w=1ms$, Pulsed.

*2 Each terminal mounted on a recommended land.

*3 Mounted on a 40x40x0.7mm ceramic board.

●Packaging specifications

Part No.	Package	MPT3
2SB1713	Packaging type	Taping
	Code	T100
	Basic ordering unit (pieces)	1000
		○

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	BV_{CE0}	-12	-	-	V	$I_C = -1mA$
Collector-base breakdown voltage	BV_{CB0}	-15	-	-		$I_C = -10\mu A$
Emitter-base breakdown voltage	BV_{EB0}	-6	-	-		$I_E = -10\mu A$
Collector cut-off current	I_{CBO}	-	-	-100	nA	$V_{CB} = -15V$
Emitter cut-off current	I_{EBO}	-	-	-100		$V_{EB} = -6V$
Collector-emitter saturation voltage	$V_{CE(sat)}$ *	-	-120	-250	mV	$I_C/I_B = -1.5A / -30mA$
DC current gain	h_{FE}	270	-	680	-	$V_{CE} = -2V$, $I_C = -500mA$
Transition frequency	f_T	-	280	-	MHz	$V_{CE} = -2V$, $I_E = 500mA$, $f = 100MHz$
Collector output capacitance	C_{ob}	-	30	-	pF	$V_{CB} = -10V$, $I_E = 0mA$, $f = 1MHz$

* Pulsed

Transistors

●Electrical characteristics curves

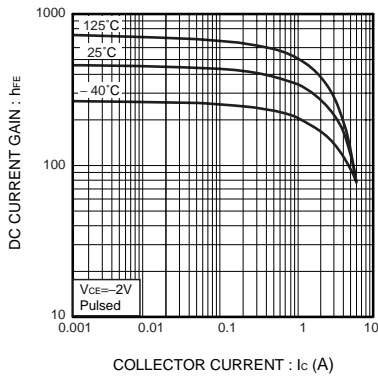


Fig.1. DC current gain vs. collector current

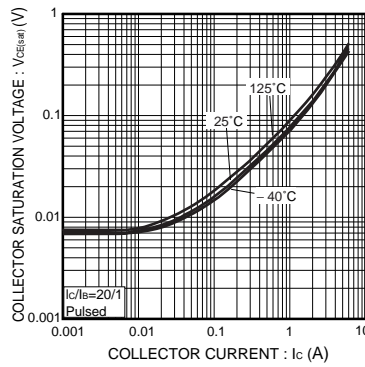


Fig.2. Collector-emitter saturation voltage vs. collector current

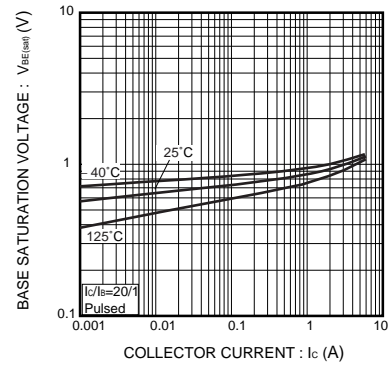


Fig.3. Base-emitter saturation voltage vs. collector current

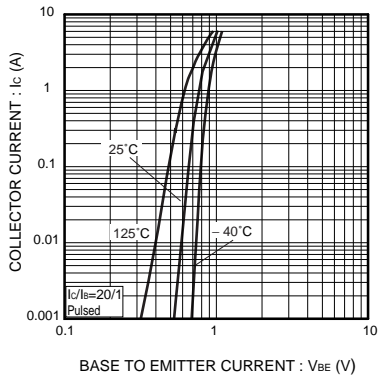


Fig.4. Grounded emitter propagation characteristics

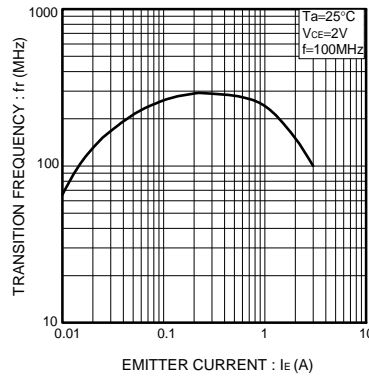


Fig.5. Gain bandwidth product vs. emitter current

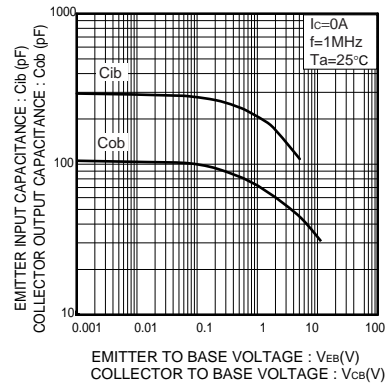


Fig.6. Emitter input capacitance vs. emitter-base voltage
Collector output capacitance vs. collector-base voltage

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