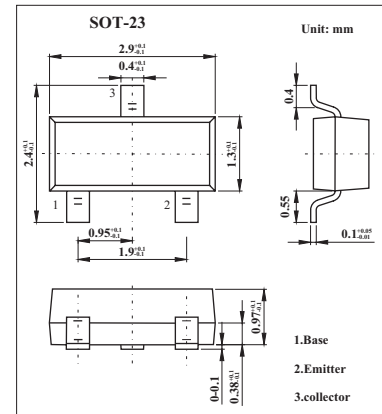


NPN Silicon Epitaxial Transistor

2SC1653

■ Features

- High DC current gain. $h_{FE}=130$ typ. ($V_{CE}=3.0V, I_C=15mA$)
- High voltage $V_{CEO} : 130V$



■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	150	V
Collector-emitter voltage	V_{CEO}	130	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	50	mA
power dissipation	P_D	150	mW
Junction temperature	T_j	125	$^\circ C$
Storage temperature	T_{stg}	-55 to +125	$^\circ C$

■ Electrical Characteristics $T_a = 25^\circ C$

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 130V, I_E=0$			0.1	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = 5V, I_C=0$			0.1	μA
DC current gain *	h_{FE}	$V_{CE} = 3V, I_C = 15mA$	90	200	400	
		$V_{CE} = 3V, I_C = 1mA$	70	180		
Collector-emitter saturation voltage *	$V_{CE(sat)}$	$I_C = 50mA, I_B = 5mA$		0.1	0.3	V
Base-emitter saturation voltage *	$V_{BE(sat)}$	$I_C = 50mA, I_B = 5mA$		0.73	1.0	V
Output capacitance	C_{ob}	$V_{CB} = 10V, I_E = 0, f = 1.0MHz$		2.3		pF
Transistor frequency	f_T	$V_{CE} = 10V, I_E = -10mA$		120		MHz

* Pulse test: $t_p \leq 350 \mu s; d \leq 0.02$.

■ h_{FE} Classification

Marking	N2	N3	N4
h_{FE}	90~180	135~270	200~400

2SC1653

■ Typical Characteristics

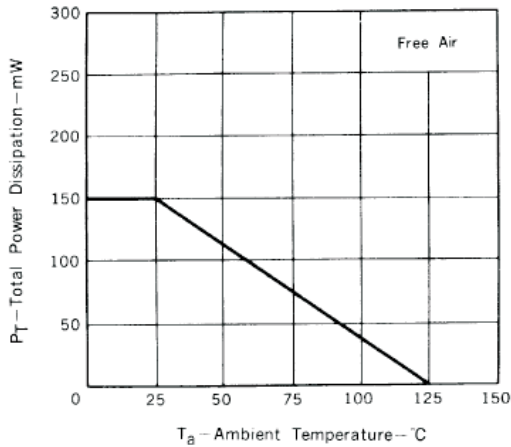


Fig.1 Total Power Dissipation vs. Ambient Temperature

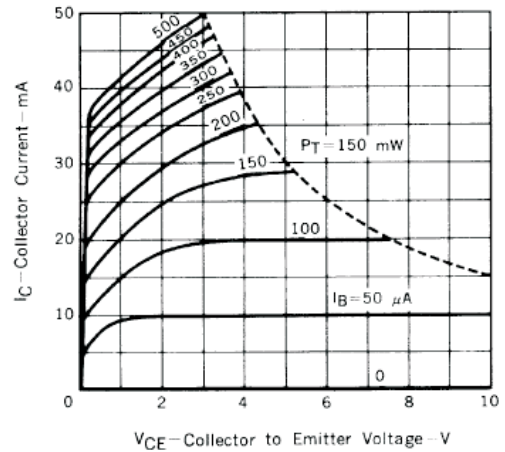


Fig.2 Collector Current vs. Collector to Emitter Voltage

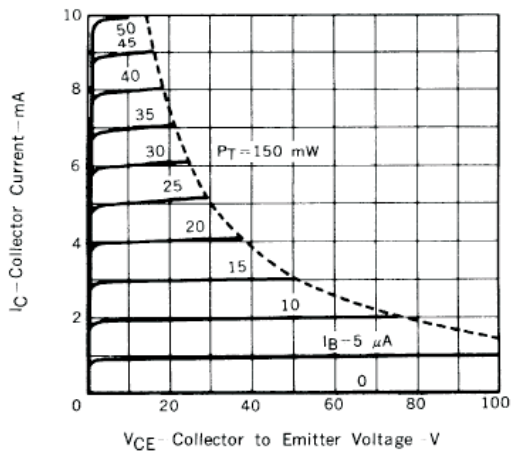


Fig.3 Collector Current vs. Base to Emitter Voltage

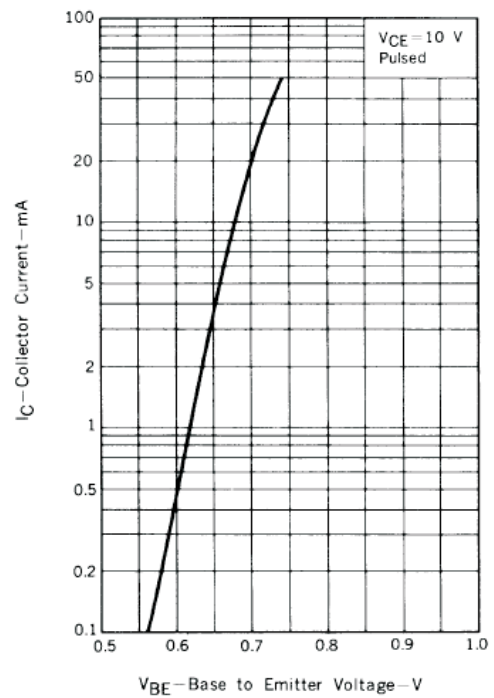


Fig.4 Collector Current vs. Collector to Emitter Voltage

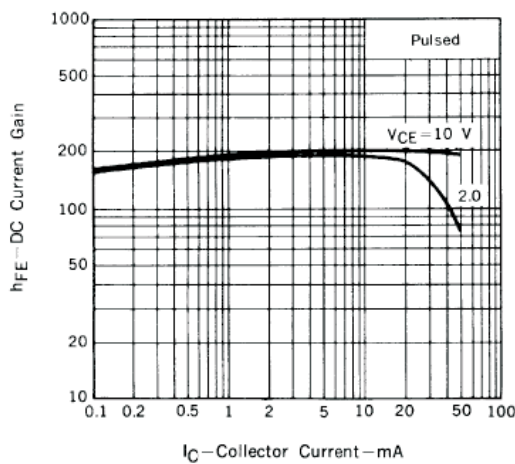


Fig.5 DC Current Gain vs. Collector Current

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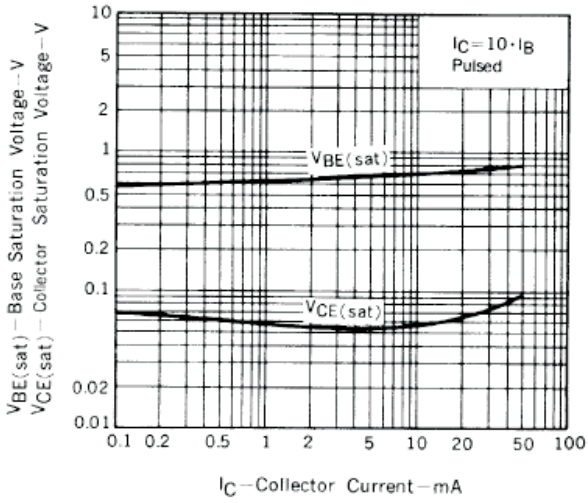


Fig.6 Base And Collector Saturation Voltage vs. Collector Current

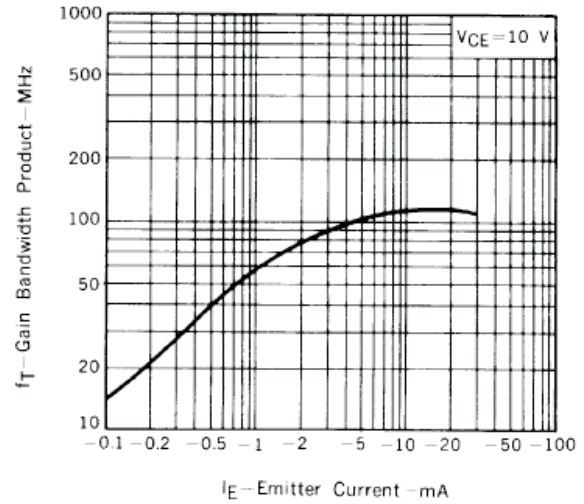


Fig.7 Gain Bandwidth Product vs. Emitter Current

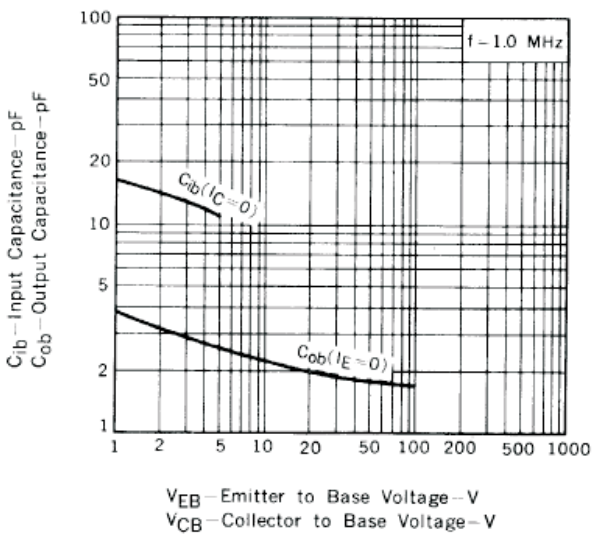


Fig.8 Input And Output Capacitance vs. Reverse Voltage