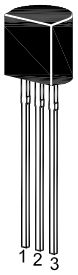
S9013

NPN Silicon Epitaxial Planar Transistor

for switching and amplifier applications. Especially suitable for AF-driver stages and low power output stages.

The transistor is subdivided into three groups, G, H and I, according to its DC current gain. As complementary type the PNP transistor 9012 is recommended.



1. Emitter 2. Base 3. Collector
TO-92 Plastic Package

Absolute Maximum Ratings (T_a = 25 °C)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	40	V
Collector Emitter Voltage	V_{CEO}	30	V
Emitter Base Voltage	V_{EBO}	5	V
Collector Current	I_C	500	mA
Power Dissipation	P_{tot}	625	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	- 55 to + 150	°C

Characteristics at T_a = 25 °C

Parameter			Symbol	Min.	Max.	Unit
DC Current Gain						
at V_{CE} = 1 V, I_C = 50 mA	Current Gain Group	G	h_{FE}	110	200	-
		H	h_{FE}	190	300	-
		I	h_{FE}	290	380	-
at V_{CE} = 1 V, I_C = 500 mA			h_{FE}	40	-	-
Collector Base Cutoff Current at V_{CB} = 35 V			I_{CBO}	-	100	nA
Emitter Base Cutoff Current at V_{EB} = 5 V			I_{EBO}	-	100	nA
Collector Bae Breakdown Voltage at I_C = 100 µA			$V_{(BR)CBO}$	40	-	V
Collector Emitter Breakdown Voltage at I_C = 1 mA			$V_{(BR)CEO}$	30	-	V
Emitter Base Breakdown Voltage at I_E = 100 µA			$V_{(BR)EBO}$	5	-	V
Collector Emitter Saturation Voltage at I_C = 500 mA, I_B = 50 mA			$V_{CE(sat)}$	-	0.6	V
Base Emitter Saturation Voltage at I_C = 500 mA, I_B = 50 mA			$V_{BE(sat)}$	-	1.2	V
Base Emitter Voltage at V_{CE} = 1 V, I_C = 100 mA			V_{BE}	-	1	V
Gain Bandwidth Product at V_{CE} = 6 V, I_C = 20 mA			f_T	100	-	MHz

Fig. 1 P_{tot}- Ta

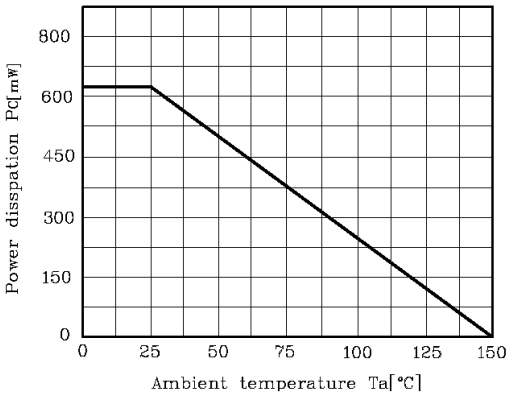


Fig. 2 I_C - V_{BE}

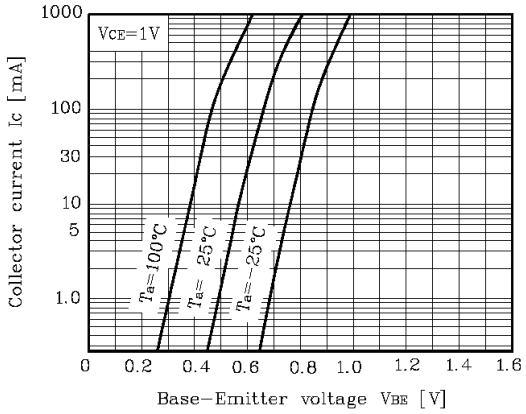


Fig. 3 I_C - V_{CE}

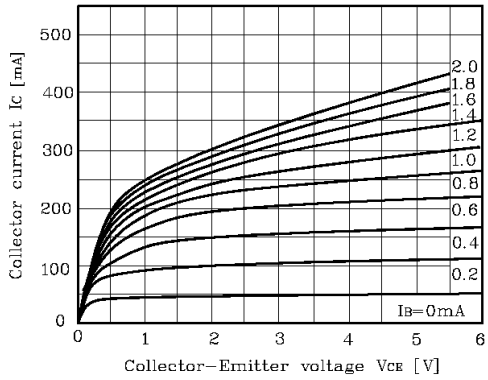


Fig. 4 $V_{CE(SAT)}$ - I_C

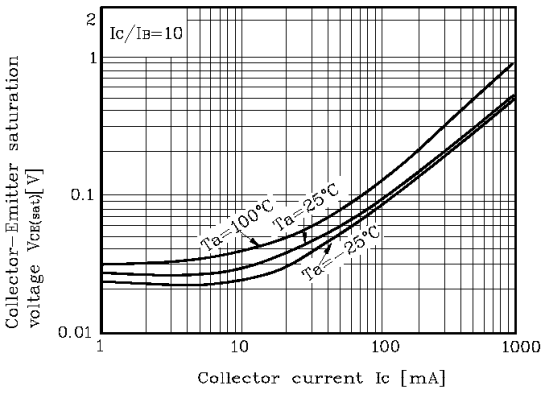


Fig. 5 h_{FE} - I_C

