

**2SB641, 2SB642****Silicon PNP Epitaxial Planar Type**

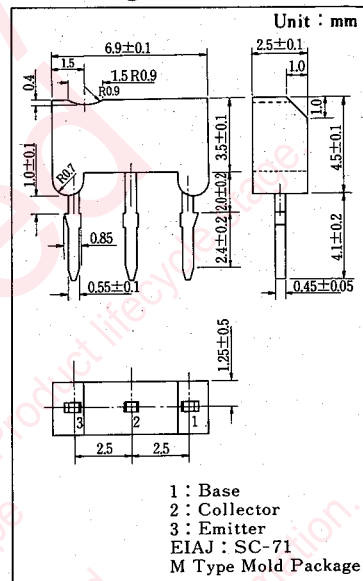
For low-power general amplification

**■ Features**

- High DC current gain  $h_{FE}$
- An M type mold package that allows easy manual and automatic insertion.  
Can be firmly mounted flush to PCB surface.

**■ Absolute Maximum Ratings ( $T_a=25^\circ\text{C}$ )**

Item	Symbol	Value	Unit
Collector-Base Voltage	2SB641	-30	V
	2SB642	-60	
Collector-Emitter Voltage	2SB641	-25	V
	2SB642	-50	
Emitter-Base Voltage	$V_{EBO}$	-7	V
Peak Collector Voltage	$I_{CP}$	-200	mA
Collector Current	$I_C$	-100	mA
Collector Power Dissipation	$P_C$	400	mW
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 ~ +150	$^\circ\text{C}$

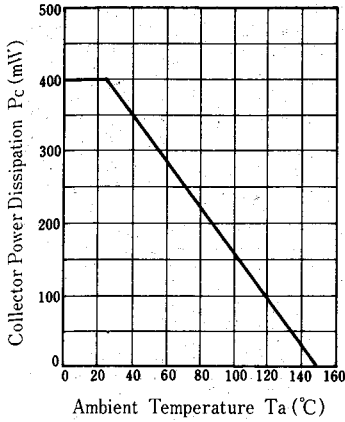
**■ Package Dimensions****■ Electrical Characteristics ( $T_a=25^\circ\text{C}$ )**

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = -20\text{ V}, I_E = 0$			-1	$\mu\text{A}$
	$I_{CEO}$	$V_{CE} = -20\text{ V}, I_B = 0$			-1	
Collector-Base Voltage	$V_{CBO}$	$I_C = -10\ \mu\text{A}, I_E = 0$	-30			V
			-60			
Collector-Emitter Voltage	$V_{CEO}$	$I_C = -2\text{ mA}, I_B = 0$	-25			V
			-50			
Emitter-Base Voltage	$V_{EBO}$	$I_E = -10\ \mu\text{A}, I_C = 0$	-7			V
DC Current Gain	$h_{FE}^*$	$V_{CE} = -10\text{ V}, I_C = -2\text{ mA}$	160		460	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -100\text{ mA}, I_B = -10\text{ mA}$			-1	V
Transition Frequency	$f_T$	$V_{CB} = -10\text{ V}, I_E = 2\text{ mA}, f = 200\text{ MHz}$		150		MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB} = -10\text{ V}, I_E = 0, f = 1\text{ MHz}$		3.5		pF

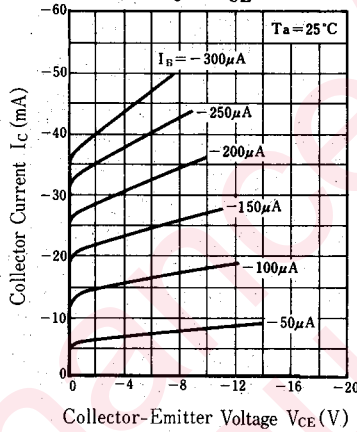
\*  $h_{FE}$  Ranking

Rank	Q	R	S
$h_{FE}$	160 ~ 260	210 ~ 340	290 ~ 460

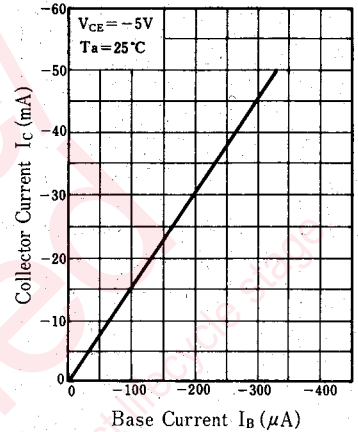
$P_C - T_a$



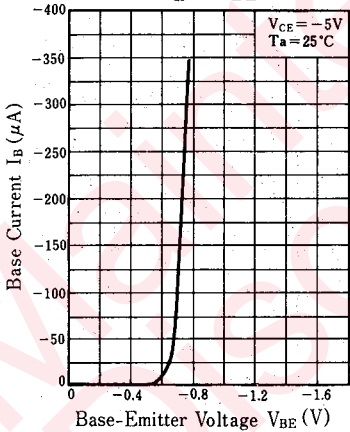
$I_C - V_{CE}$



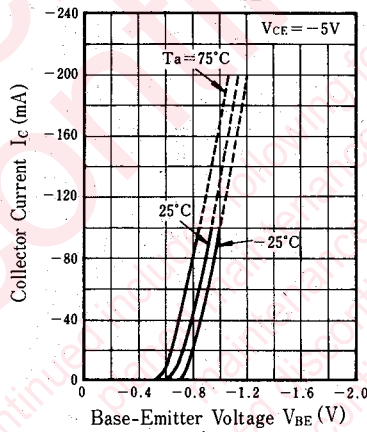
$I_C - I_B$



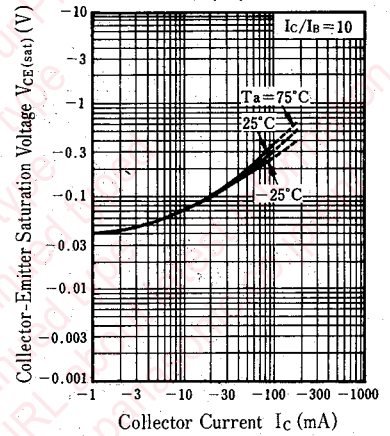
$I_B - V_{BE}$



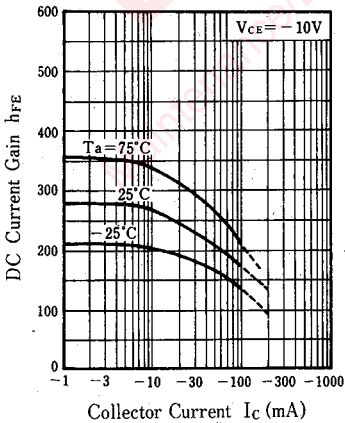
$I_C - V_{BE}$



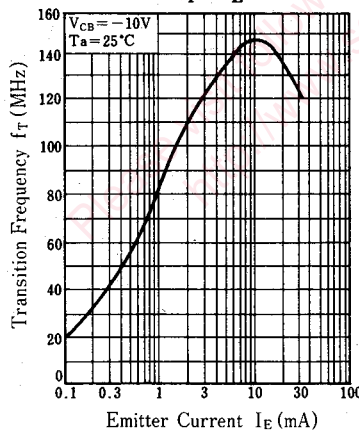
$V_{CE(sat)} - I_C$



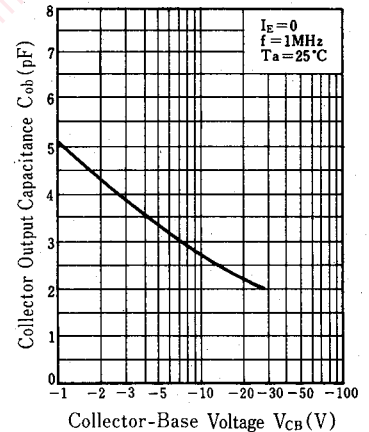
$h_{FE} - I_C$



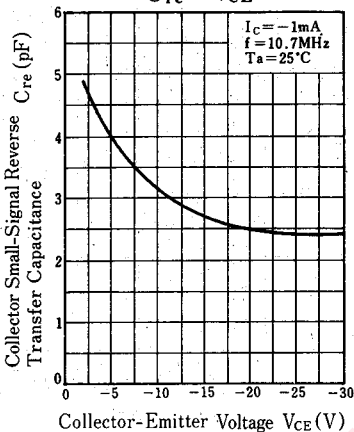
$f_T - I_E$



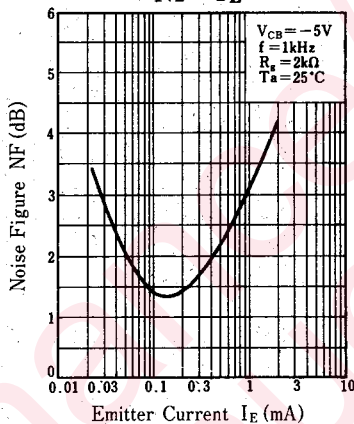
$C_{ob} - V_{CB}$



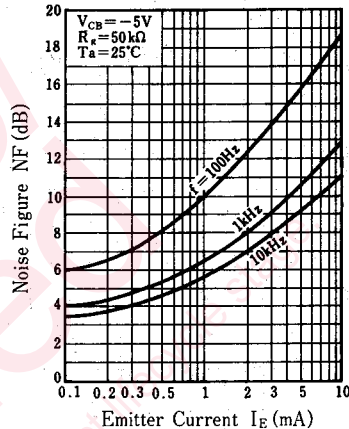
$C_{re} - V_{CE}$



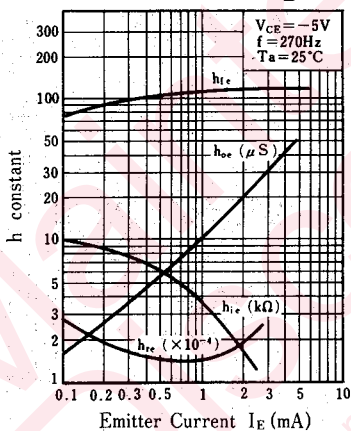
NF -  $I_E$



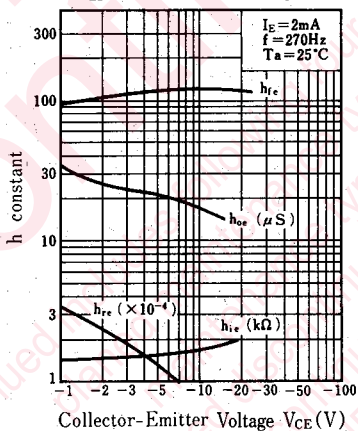
NF -  $I_E$



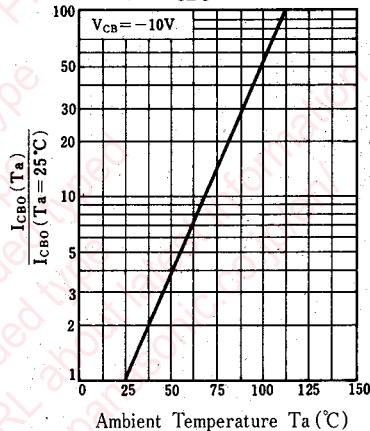
h Parameter -  $I_E$



h Parameter -  $V_{CE}$



$I_{CBO} - T_a$



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