Ordering number:EN3187

PNP/NPN Epitaxial Planar Silicon Transistor

# 2SA1745/2SC4555

## Low-Frequency General-Purpose Amplifier Applications

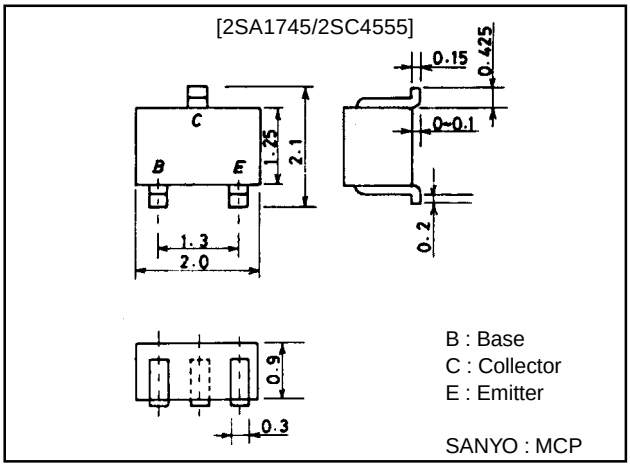
## Features

- Very small-sized package permitting the 2SA1745/2SC4555-applied set to be made small and slim.
- Low collector-to-emitter saturation voltage.

## Package Dimensions

unit:mm

2059




( ) : 2SA1745

## Specifications

### Absolute Maximum Ratings at Ta = 25˚C

| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Collector-to-Base Voltage | $V_{CBO}$ | | (–)20 | V |
| Collector-to-Emitter Voltage | $V_{CEO}$ | | (–)15 | V |
| Emitter-to-Base Voltage | $V_{EBO}$ | | (–)5 | V |
| Collector Current | $I_C$ | | (–)500 | mA |
| Collector Current (Pulse) | $I_{CP}$ | | (–)1 | A |
| Collector Dissipation | $P_C$ | | 150 | mW |
| Junction Temperature | Tj | | 150 | ˚C |
| Storage Temperature | Tstg | | –55 to +150 | ˚C |

### Electrical Characteristics at Ta = 25˚C

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Collector Cutoff Current | $I_{CBO}$ | $V_{CB}$=(–)15V, $I_E$=0 | | | (–)0.1 | μA |
| Emitter Cutoff Current | $I_{EBO}$ | $V_{EB}$=(–)4V, $I_C$=0 | | | (–)0.1 | μA |
| DC Current Gain | $h_{FE}1$ | $V_{CE}$=(–)2V, $I_C$=(–)10mA | 135* | | 600* | |
| | $h_{FE}2$ | $V_{CE}$=(–)2V, $I_C$=(–)400mA | (70)80 | | | |
| Gain-Bandwidth Product | $f_T$ | $V_{CE}$=(–)2V, $I_C$=(–)50mA | | 300 | | MHz |
| | | | | (400) | | MHz |
| Output Capacitance | $C_{ob}$ | $V_{CB}$=(–)10V, f=1MHz | | (6.5) | | pF |
| | | | | 4.0 | | pF |




SANYO Electric Co.,Ltd. Semiconductor Bussiness Headquaters

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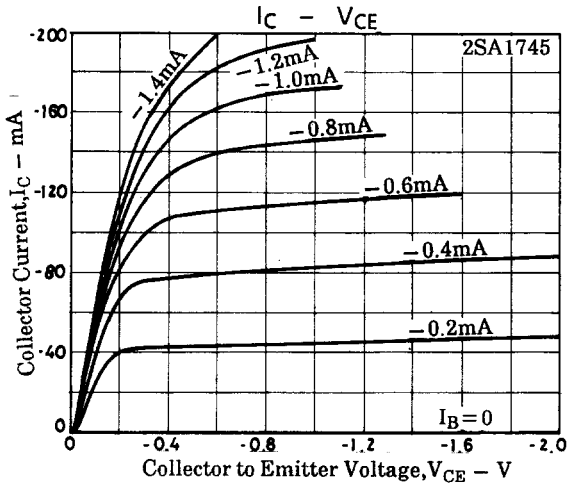
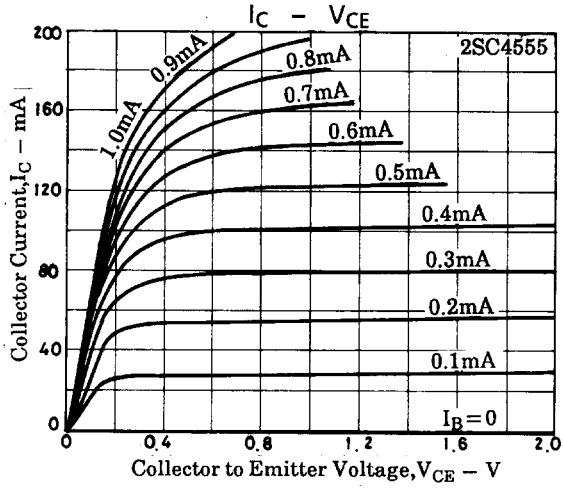
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}1$ | $I_C$=(–)5mA, $I_B$=(–)0.5mA | | (–)15 | (–35)<br>30 | mV |
| | $V_{CE(sat)}2$ | $I_C$=(–)200mA, $I_B$=(–)10mA | | 160 | 300 | mV |
| | | | | (–200) | (–360) | |
| Base-to-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C$=(–)200mA, $I_B$=(–)10mA | | (–)0.95 | (–)1.2 | V |
| Collector-to-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C$=(–)10μA, $I_E$=0 | (–)20 | | | V |
| Collector-to-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C$=(–)1mA, $R_{BE}$=∞ | (–)15 | | | V |
| Emiiter-to-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E$=(–)10μA, $I_C$=0 | (–)5 | | | V |

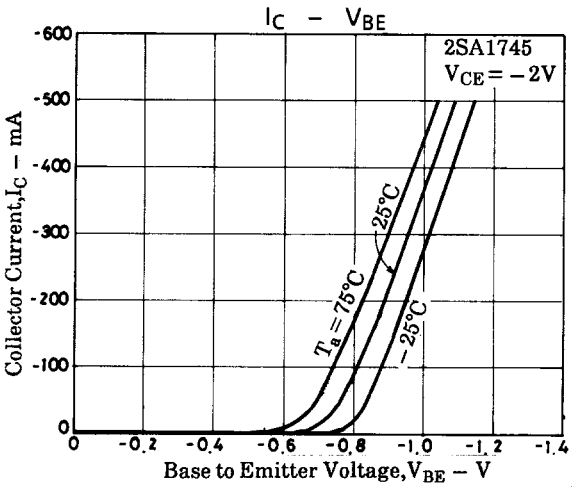
* : The 2SA1745/2SC4555 are classified by 10mA $h_{FE}$ as follows :

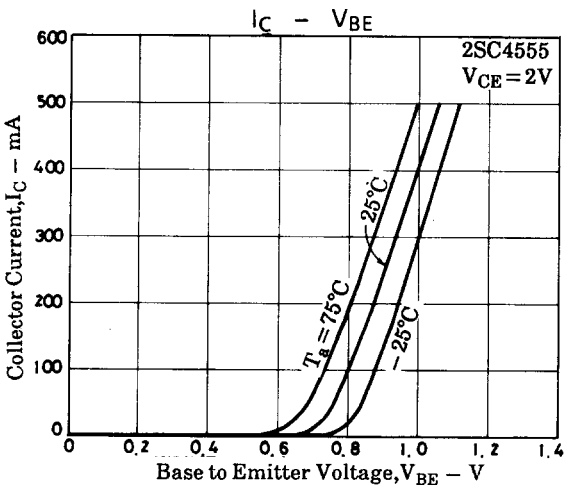
| | | |
|---|---|---|
| 130 5 270 | 200 6 400 | 300 7 600 |

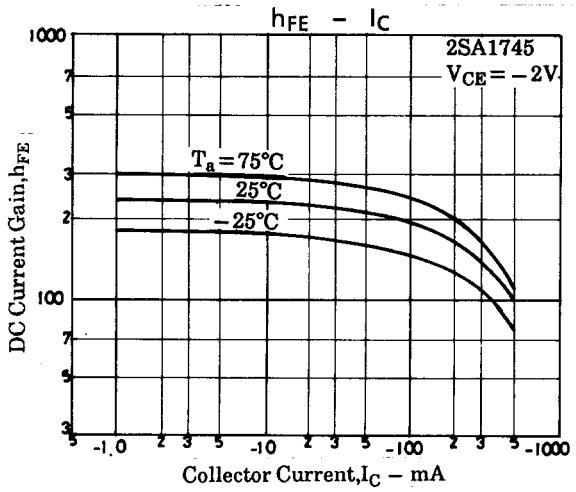
Marking 2SA1745 : ES
2SC4555 : UT
$h_{FE}$ rank : 5, 6, 7

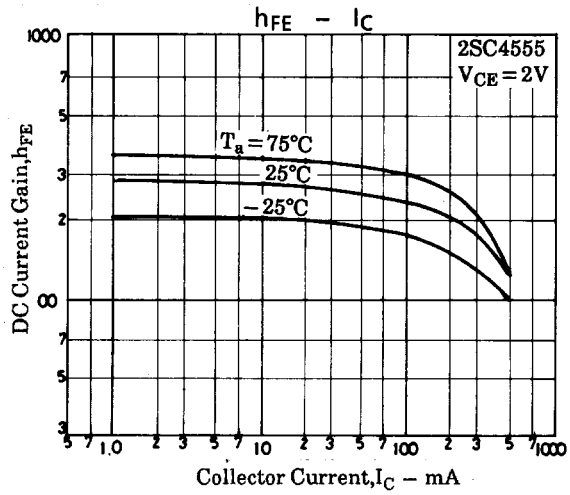


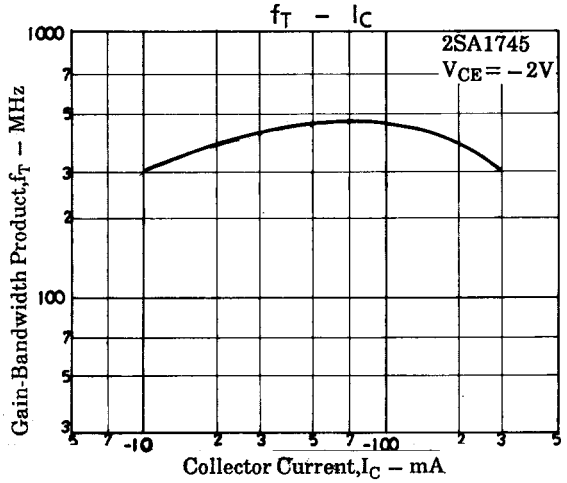



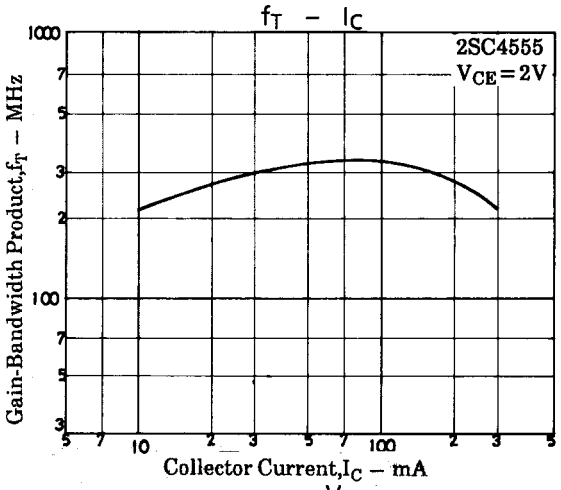



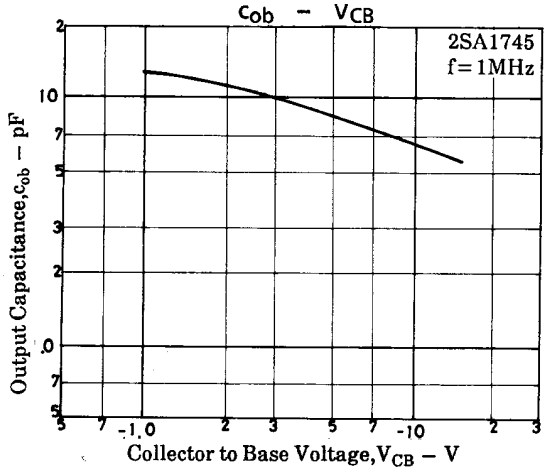



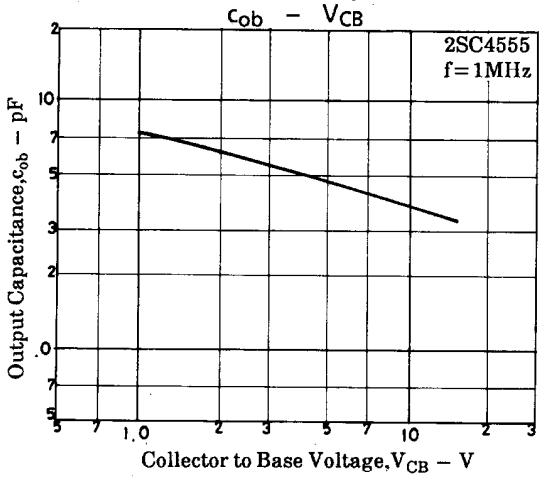



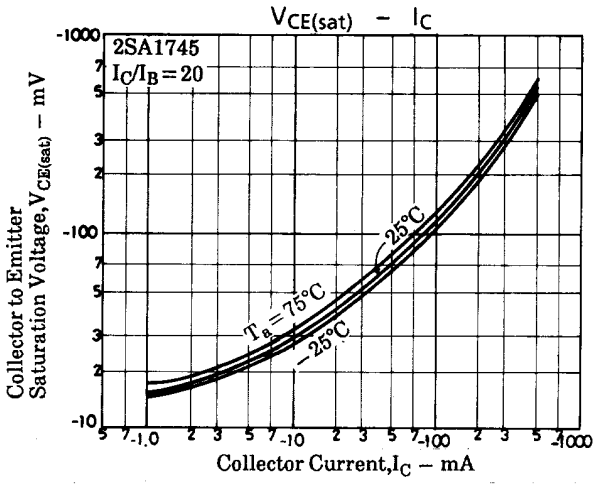



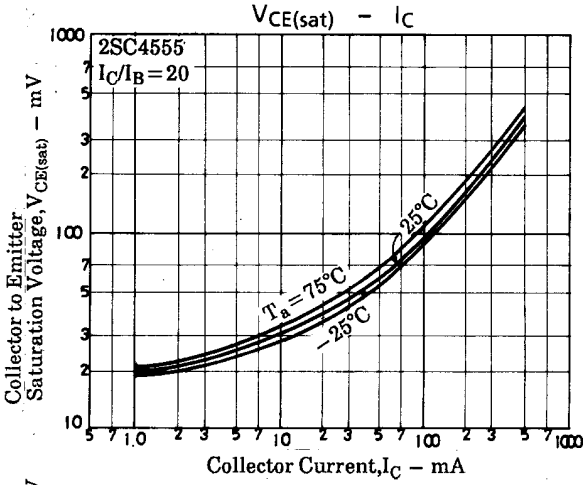

$f_T$ – $I_C$
2SA1745
$V_{CE}$ = –2V
Gain-Bandwidth Product, $f_T$ – MHz
Collector Current, $I_C$ – mA

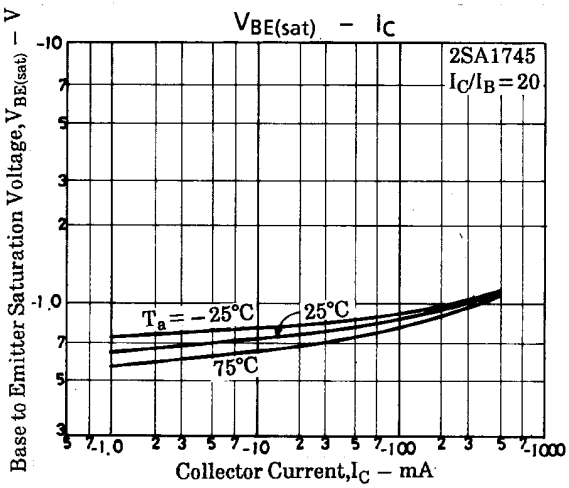

$f_T$ – $I_C$
2SC4555
$V_{CE}$ = 2V
Gain-Bandwidth Product, $f_T$ – MHz
Collector Current, $I_C$ – mA

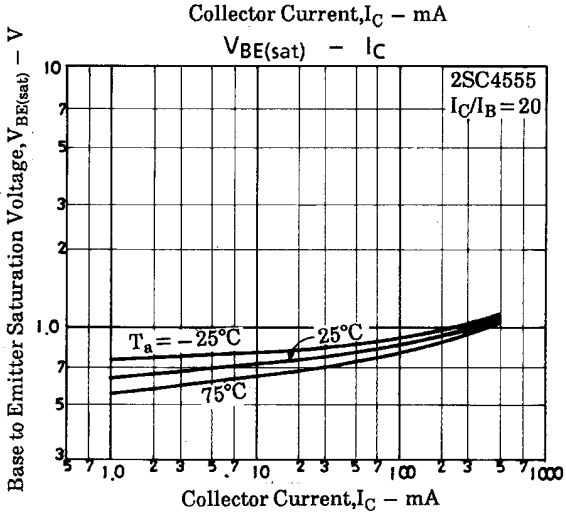

$C_{ob}$ – $V_{CB}$
2SA1745
f = 1MHz
Output Capacitance, $C_{ob}$ – pF
Collector to Base Voltage, $V_{CB}$ – V


$C_{ob}$ – $V_{CB}$
2SC4555
f = 1MHz
Output Capacitance, $C_{ob}$ – pF
Collector to Base Voltage, $V_{CB}$ – V


$V_{CE(sat)}$ – $I_C$
2SA1745
$I_C/I_B$ = 20
$T_a$ = 75°C
25°C
–25°C
Collector to Emitter Saturation Voltage, $V_{CE(sat)}$ – mV
Collector Current, $I_C$ – mA


$V_{CE(sat)}$ – $I_C$
2SC4555
$I_C/I_B$ = 20
$T_a$ = 75°C
25°C
–25°C
Collector to Emitter Saturation Voltage, $V_{CE(sat)}$ – mV
Collector Current, $I_C$ – mA


$V_{BE(sat)}$ – $I_C$
2SA1745
$I_C/I_B$ = 20
$T_a$ = –25°C
25°C
75°C
Base to Emitter Saturation Voltage, $V_{BE(sat)}$ – V
Collector Current, $I_C$ – mA


$V_{BE(sat)}$ – $I_C$
2SC4555
$I_C/I_B$ = 20
$T_a$ = –25°C
25°C
75°C
Base to Emitter Saturation Voltage, $V_{BE(sat)}$ – V
Collector Current, $I_C$ – mA