

**Descriptions**

- High voltage application
- Telephone application

**Features**

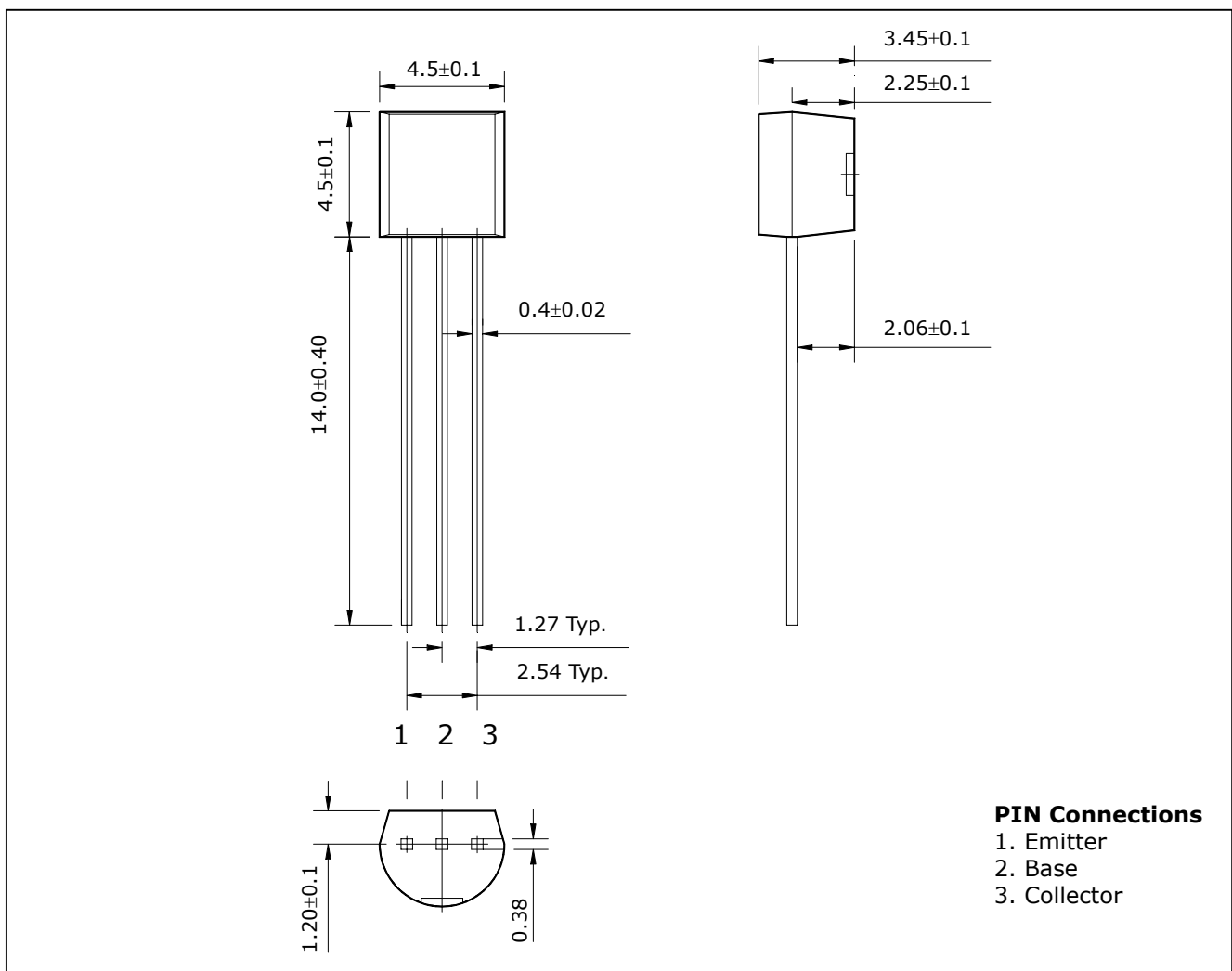
- Collector-Emitter voltage  
 $V_{CE0} = 300V$
- Complementary pair with SPS92

**Ordering Information**

Type NO.	Marking	Package Code
SPS42	SPS42	TO-92

**Outline Dimensions**

unit : mm



**Absolute maximum ratings**

(Ta=25°C)

Characteristic	Symbol	Ratings	Unit
Collector-Base voltage	$V_{CBO}$	300	V
Collector-Emitter voltage	$V_{CEO}$	300	V
Emitter-Base voltage	$V_{EBO}$	6	V
Collector current	$I_C$	500	mA
Emitter Current	$I_E$	-500	mA
Collector dissipation	$P_C$	625	mW
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55~150	°C

**Electrical Characteristics**

(Ta=25°C)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base breakdown voltage	$BV_{CBO}$	$I_C=100\mu A, I_E=0$	300	-	-	V
Collector-Emitter breakdown voltage	$BV_{CEO}$	$I_C=1mA, I_B=0$	300	-	-	V
Emitter-Base breakdown voltage	$BV_{EBO}$	$I_E=100\mu A, I_C=0$	6	-	-	V
Collector cut-off current	$I_{CBO}$	$V_{CB}=200V, I_E=0$	-	-	0.1	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=6V, I_C=0$	-	-	0.1	$\mu A$
DC current gain	$h_{FE}^*$	$V_{CE}=10V, I_C=30mA$	40	-	-	-
Collector-Emitter saturation voltage	$V_{CE(sat)}^*$	$I_C=20mA, I_B=2mA$	-	-	0.5	V
Base-Emitter saturation voltage	$V_{BE(sat)}^*$	$I_C=20mA, I_B=2mA$	-	-	0.9	V
Transition frequency	$f_T$	$V_{CE}=20V, I_C=10mA$	50	-	-	MHz
Collector output capacitance	$C_{ob}$	$V_{CB}=20V, I_E=0, f=1MHz$	-	-	3	pF

\* : Pulse Tester : Pulse Width  $\leq 300 \mu s$ , Duty Cycle  $\leq 2.0\%$

## Electrical Characteristic Curves

Fig. 1  $h_{FE} - I_C$

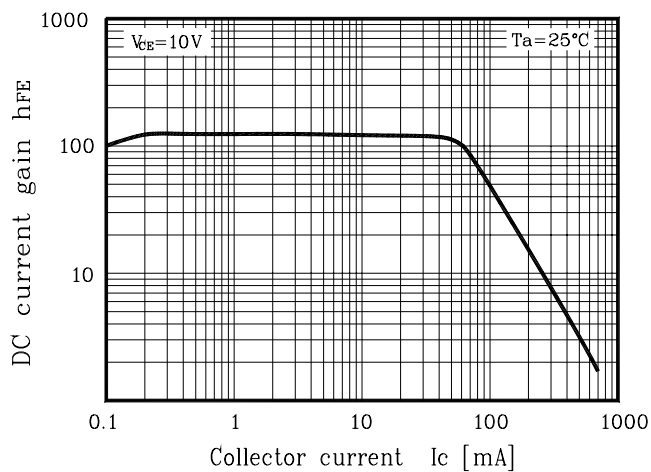


Fig. 2  $V_{CE(sat)}, V_{BE(sat)} - I_C$

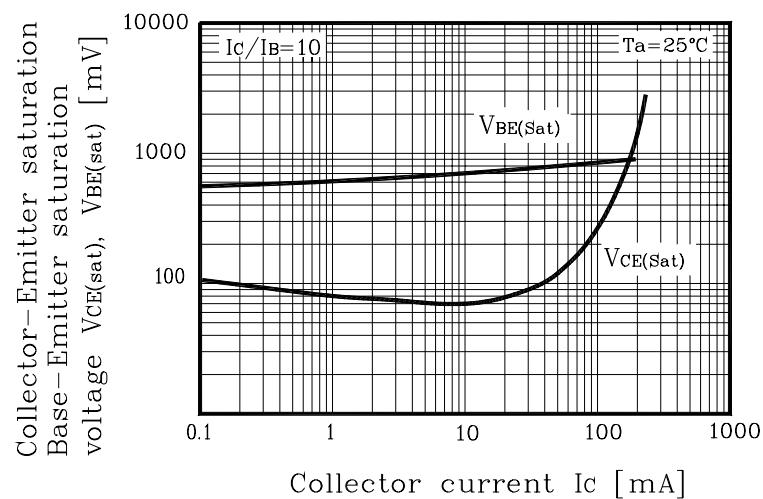


Fig. 3  $f_T - I_C$

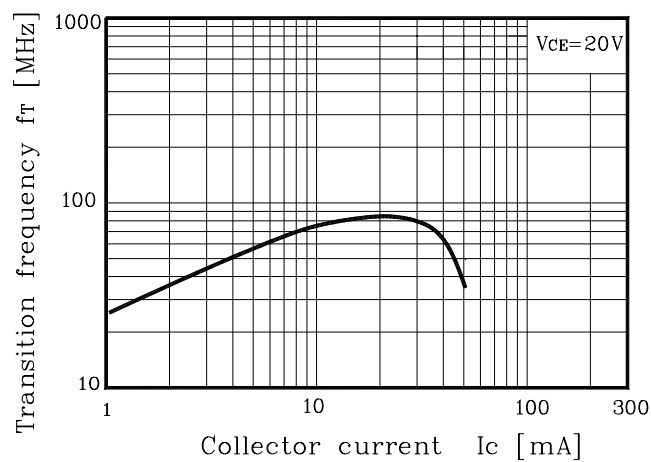


Fig. 4  $C_{ob} - V_R$

