

# 2SC3943

## Silicon NPN epitaxial planar type

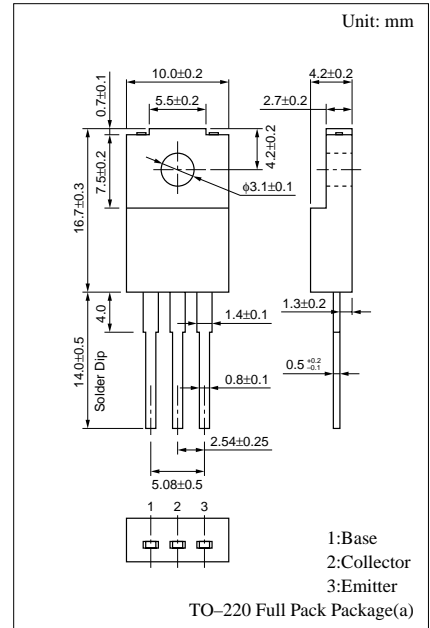
For video amplifier

### Features

- Small transition frequency  $f_T$
- Small collector output capacitance  $C_{ob}$
- Full-pack package which can be installed to the heat sink with one screw

### Absolute Maximum Ratings ( $T_C=25^\circ\text{C}$ )

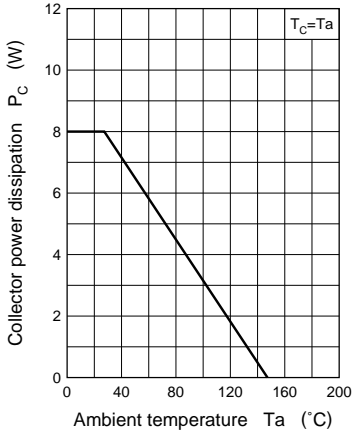
Parameter	Symbol	Ratings	Unit	
Collector to base voltage	$V_{CBO}$	110	V	
Collector to emitter voltage	$V_{CER}$	100	V	
	$V_{CEO}$	50	V	
Emitter to base voltage	$V_{EBO}$	3.5	V	
Peak collector current	$I_{CP}$	300	mA	
Collector current	$I_C$	150	mA	
Collector power dissipation	$P_C$	$T_C=25^\circ\text{C}$	8	W
		$T_a=25^\circ\text{C}$	2.0	
Junction temperature	$T_j$	150	$^\circ\text{C}$	
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$	



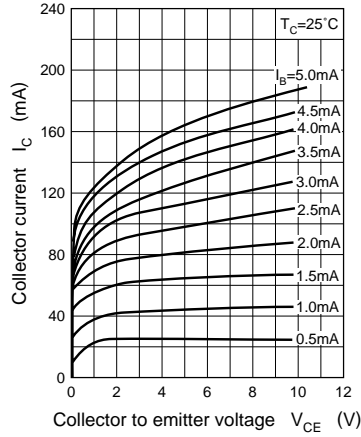
### Electrical Characteristics ( $T_C=25^\circ\text{C}$ )

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	$I_{CEO}$	$V_{CE} = 35\text{V}, I_B = 0$			10	$\mu\text{A}$
Collector to base voltage	$V_{CBO}$	$I_C = 100\mu\text{A}, I_E = 0$	110			V
Collector to emitter voltage	$V_{CER}$	$I_C = 500\mu\text{A}, R_{BE} = 470\Omega$	100			V
	$V_{CEO}$	$I_C = 1\text{mA}, I_B = 0$	50			V
Emitter to base voltage	$V_{EBO}$	$I_E = 100\mu\text{A}, I_C = 0$	3.5			V
Forward current transfer ratio	$h_{FE}$	$V_{CE} = 5\text{V}, I_C = 100\text{mA}$	20			
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 150\text{mA}, I_B = 15\text{mA}$			0.5	V
Transition frequency	$f_{T1}$	$V_{CE} = 10\text{V}, I_C = 10\text{mA}, f = 10\text{MHz}$		300		MHz
	$f_{T2}$	$V_{CE} = 10\text{V}, I_C = 110\text{mA}, f = 10\text{MHz}$		350		MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = 30\text{V}, I_E = 0, f = 1\text{MHz}$		3.5		pF

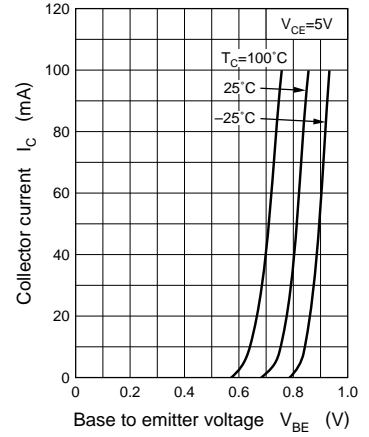
$P_C - T_a$



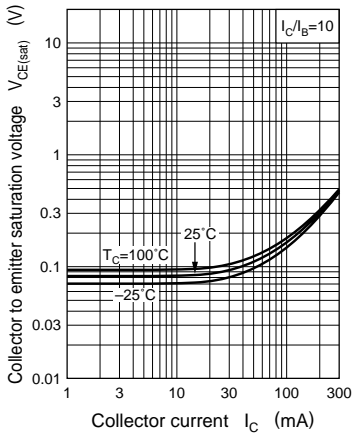
$I_C - V_{CE}$



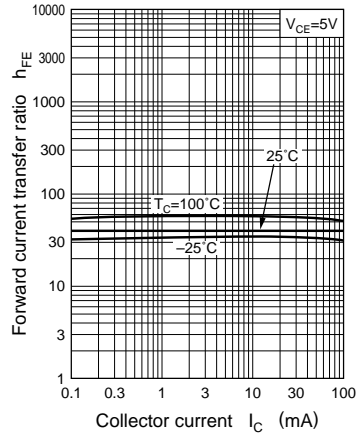
$I_C - V_{BE}$



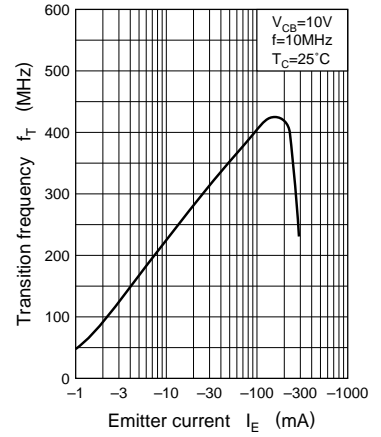
$V_{CE(sat)} - I_C$



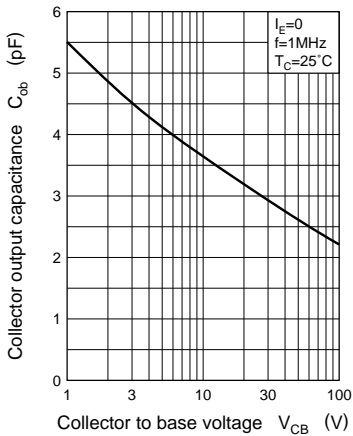
$h_{FE} - I_C$



$f_T - I_E$



$C_{ob} - V_{CB}$



Area of safe operation (ASO)

