

# 2SC1965A

NPN EPITAXIAL PLANAR TYPE

## DESCRIPTION

2SC1965A is a silicon NPN epitaxial planar type transistor designed for industrial use RF power amplifiers on VHF band mobile radio applications.

## FEATURES

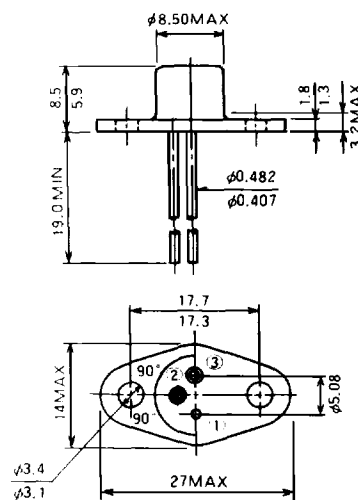
- High power gain :  $G_{pe} \geq 10\text{dB}$ , @  $V_{cc} = 13.5\text{V}$ ,  $f = 175\text{MHz}$ ,  $P_o = 6\text{W}$
- TC-17 metal sealed package for high reliability.
- Emitter ballasted construction for good performances.
- Emitter electrode is connected electrically to the case.
- Load mismatch: Ability to withstand more than 20:1 load VSWR when operated at  $V_{cc} = 15.2\text{V}$ ,  $P_o = 6\text{W}$ ,  $f = 175\text{MHz}$ ,  $T_c = 25^\circ\text{C}$

## APPLICATIONS

4W power amplifiers in VHF band mobile radio applications.

## OUTLINE DRAWING

Dimension in mm



PIN :  
 1 EMITTER (CASE)  
 2 BASE  
 3 COLLECTOR

TC-17

## ABSOLUTE MAXIMUM RATINGS ( $T_c = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Ratings	Unit
$V_{CB0}$	Collector-base voltage		40	V
$V_{EB0}$	Emitter-base voltage		4	V
$V_{CE0}$	Collector-emitter voltage	$R_{BE} = \infty$	17	V
$I_c$	Collector current		2	A
$P_c$	Collector dissipation	$T_a = 25^\circ\text{C}$	1.5	W
		$T_c = 25^\circ\text{C}$	15	W
$T_j$	Junction temperature		175	$^\circ\text{C}$
$T_{stg}$	Storage temperature		- 65 to 175	$^\circ\text{C}$
$R_{thc}$	Thermal resistance	Junction to ambient	100	$^\circ\text{C}/\text{W}$
		Junction to case	10	$^\circ\text{C}/\text{W}$

Note. Above parameters are guaranteed independently.

## ELECTRICAL CHARACTERISTICS ( $T_c = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Test conditions	Limits		Unit
			Min	Max	
$V_{(BR)CB0}$	Collector-base breakdown voltage	$I_c = 10\text{mA}$ , $I_E = 0$	40		V
$V_{(BR)EB0}$	Emitter-base breakdown voltage	$I_E = 5\text{mA}$ , $I_c = 0$	4		V
$V_{(BR)CE0}$	Collector-emitter breakdown voltage	$I_c = 50\text{mA}$ , $R_{BE} = \infty$	17		V
$I_{cB0}$	Collector cutoff current	$V_{CB} = 25\text{V}$ , $I_E = 0$		0.5	mA
$I_{EB0}$	Emitter cutoff current	$V_{EB} = 3\text{V}$ , $I_c = 0$		0.5	mA
$h_{FE}$	DC forward current gain	$V_{CE} = 10\text{V}$ , $I_c = 0.1\text{A}$	10	180	-
$P_o$	Output power	$V_{cc} = 13.5\text{V}$ , $f = 175\text{MHz}$ , $P_{in} = 0.6\text{W}$	6		W
$\eta_c$	Collector efficiency		50		%

Note. Above parameters, ratings, limits and conditions are subject to change.

