

Silicon NPN Power Transistors

2SC3970 2SC3970A

DESCRIPTION

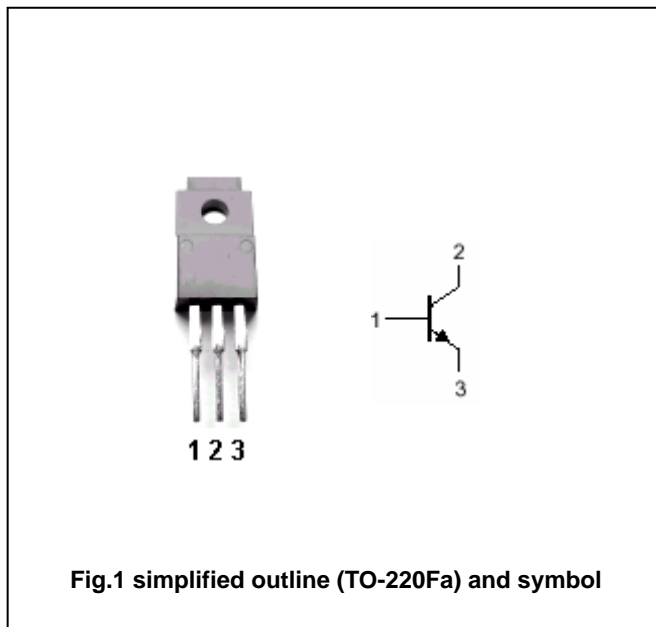
- With TO-220Fa package
- High speed switching
- High  $V_{CBO}$
- Wide area of safe operation

APPLICATIONS

- For high breakdown voltate ,high-speed switching applications

PINNING

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter



Absolute maximum ratings ( $T_a=25$  )

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	2SC3970	800	V
		2SC3970A	900	
$V_{CEO}$	Collector-emitter voltage	Open base	500	V
$V_{EBO}$	Emitter-base voltage	Open collector	8	V
$I_C$	Collector current (DC)		1.5	A
$I_{CM}$	Collector current-Peak		3.0	A
$I_B$	Base current		0.5	A
$P_C$	Collector power dissipation	$T_c=25$	25	W
		$T_a=25$	2	
$T_j$	Junction temperature		150	
$T_{stg}$	Storage temperature		-55~150	

**Silicon NPN Power Transistors**

**2SC3970 2SC3970A**

**CHARACTERISTICS**

Tj=25 unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	$I_C=10mA, I_B=0$	500			V
$V_{CEsat}$	Collector-emitter saturation voltage	$I_C=0.6A; I_B=0.17A$			1.0	V
$V_{BEsat}$	Base-emitter saturation voltage	$I_C=0.6A; I_B=0.17A$			1.5	V
$I_{CBO}$	Collector cut-off current	2SC3970			0.1	mA
		2SC3970A				
$I_{EBO}$	Emitter cut-off current	$V_{EB}=5V; I_C=0$			0.1	mA
$h_{FE-1}$	DC current gain	$I_C=0.1A; V_{CE}=5V$	15			
$h_{FE-2}$	DC current gain	$I_C=0.6A; V_{CE}=5V$	8			
$f_T$	Transition frequency	$I_C=0.1A; V_{CE}=10V; f=1MHz$		20		MHz

Switching times

$t_{on}$	Turn-on time	$I_C=0.6A; I_{B1}=0.17A$ $I_{B2}=-0.34A; V_{CC}=200V$			1.0	$\mu s$
$t_s$	Storage time				3.0	$\mu s$
$t_f$	Fall time				0.3	$\mu s$

Silicon NPN Power Transistors

2SC3970 2SC3970A

PACKAGE OUTLINE

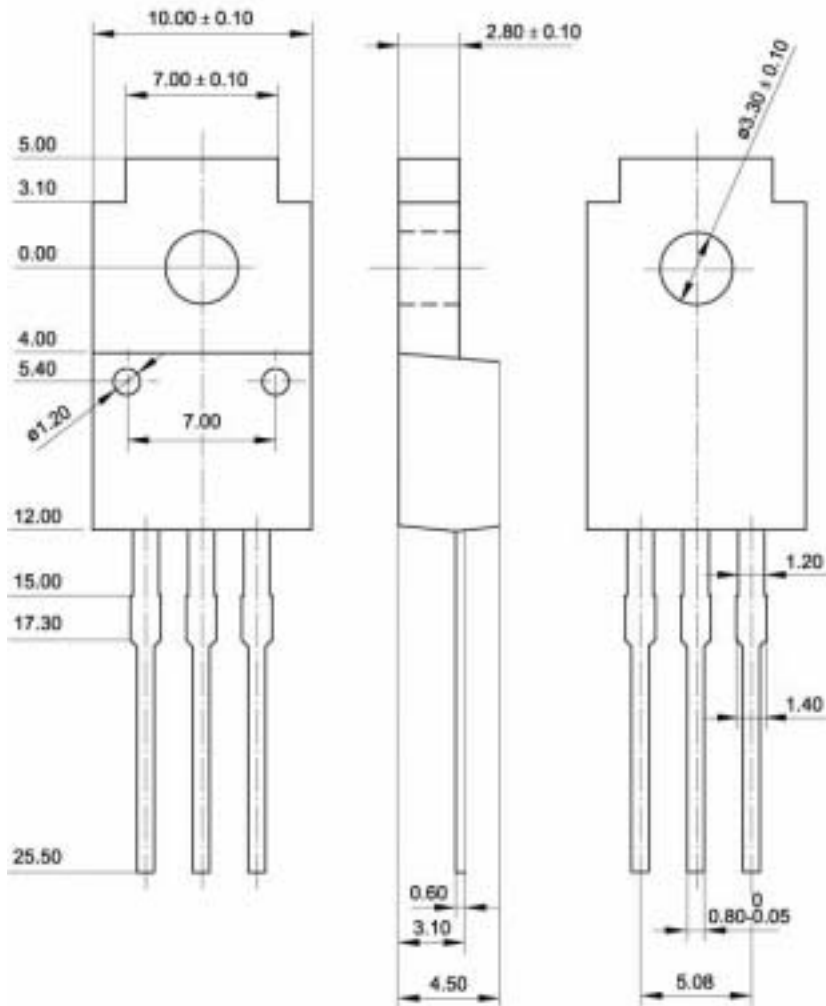


Fig.2 Outline dimensions (unindicated tolerance:  $\pm 0.15$  mm)

Silicon NPN Power Transistors

2SC3970 2SC3970A

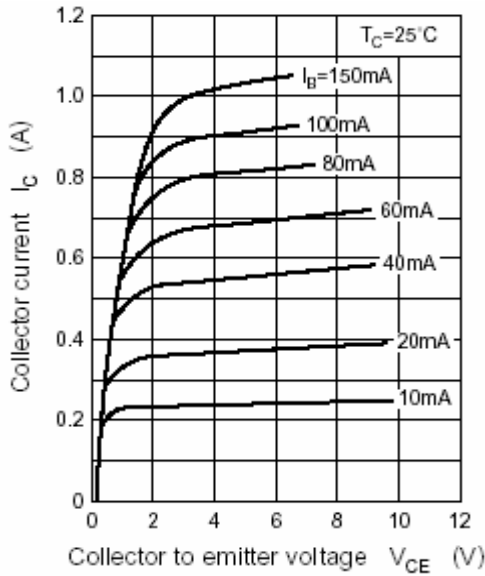


Fig.3 Static Characteristic

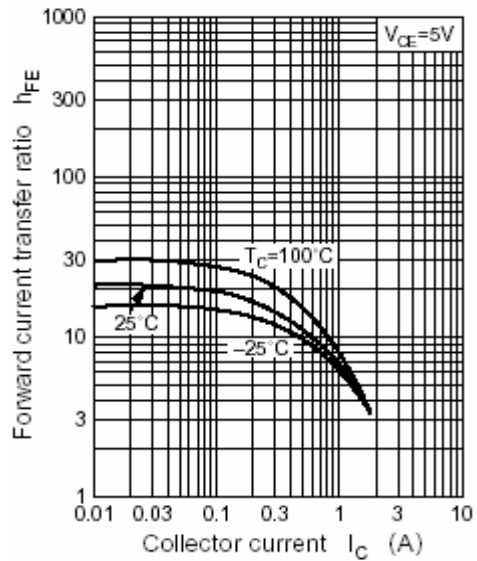


Fig.4 DC current Gain

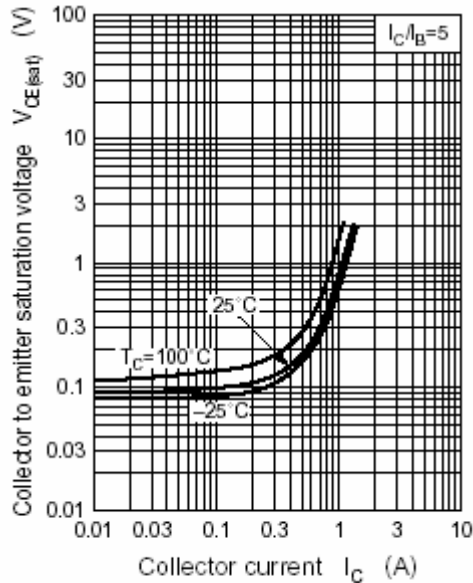


Fig.5 Collector-Emitter Saturation Voltage

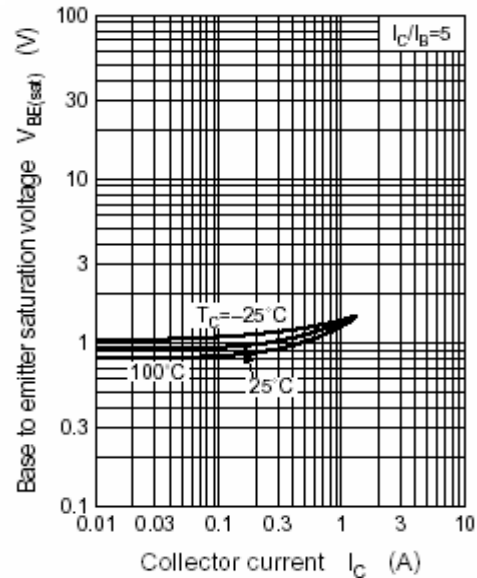


Fig.6 Base-Emitter Saturation Voltage

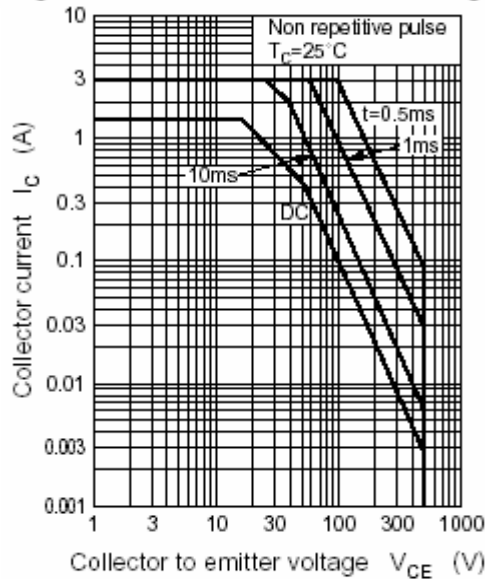


Fig.7 Safe Operating Area