

**DESCRIPTION**

The 2SD596-V1, 2SD596-V2, 2SD596-V3, 2SD596-V4 and 2SD596-V5 are available in the SOT-23 package.

ORDERING INFORMATION

Package Type	Part Number
SOT-23	2SD596-V1
	2SD596-V2
	2SD596-V3
	2SD596-V4
	2SD596-V5
SPQ	3,000pcs/Reel
AiT provides all RoHS Compliant Products	

 h_{FE} CLASSIFICATION

Rank	Range
V1	110 ~ 180
V2	135 ~ 220
V3	170 ~ 270
V4	200 ~ 320
V5	250 ~ 400

ABSOLUTE MAXIMUM RATINGS

$T_A = 25^{\circ}\text{C}$, unless otherwise specified.

V_{CBO} , Collector-Base Voltage	30 V
V_{CEO} , Collector-Emitter Voltage	25 V
V_{EBO} , Emitter-Base Voltage	5 V
I_C , Collector Current-Continuous	700 mA
P_C , Collector Dissipation	200 mW
T_J, T_{stg} , Junction and Storage Temperature	-55 ~ 150 $^{\circ}\text{C}$

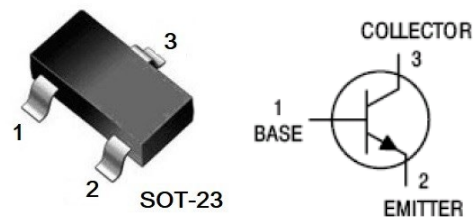
Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

FEATURE

- Micro package.
- Complementary to 2SB624 PNP transistor.
- High DC current gain h_{FE} : 200TYP. ($V_{CE}=1.0\text{V}$, $I_C=100\text{mA}$)

APPLICATION

Audio frequency general purpose amplifier applications.

PIN DESCRIPTION

PIN#	DESCRIPTION
1	Base
2	Emitter
3	Collector

**ELECTRICAL CHARACTERISTICS** $T_A = 25^\circ\text{C}$ unless otherwise specified.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\text{ }\mu\text{A}$, $I_E = 0$	30	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{ mA}$, $I_B = 0$	25	-	-	V
Collector-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 100\text{ }\mu\text{A}$, $I_C = 0$	5	-	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB} = 30\text{ V}$, $I_E = 0$	-	-	0.1	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = 5\text{ V}$, $I_C = 0$	-	-	0.1	μA
DC Current Gain	h_{FE}	$V_{CE} = 1\text{ V}$, $I_C = 100\text{ mA}$	110	200	400	-
		$V_{CE} = 1\text{ V}$, $I_C = 700\text{ mA}$	50	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 700\text{ mA}$, $I_B = 70\text{ mA}$	-	0.22	0.6	V
Base-Emitter Voltage	V_{BE}	$V_{CE} = 6\text{ V}$, $I_C = 10\text{ mA}$	600	640	700	V
Transition Frequency	f_T	$V_{CE} = 6\text{ V}$, $I_E = -10\text{ mA}$	170	-	-	MHz
Output capacitance	C_{ob}	$V_{CB} = 6\text{ V}$, $I_E = 0$ $f = 10\text{ kHz}$	-	12	-	pF



TYPICAL CHARACTERISTICS

Fig 1. Total power dissipation vs.
Ambient temperature

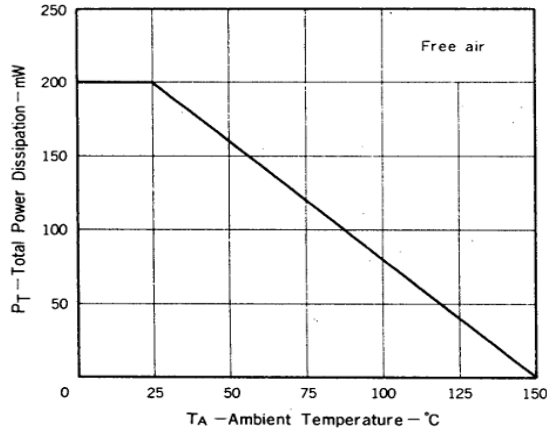


Fig 2. Collector current vs. Collector to emitter voltage

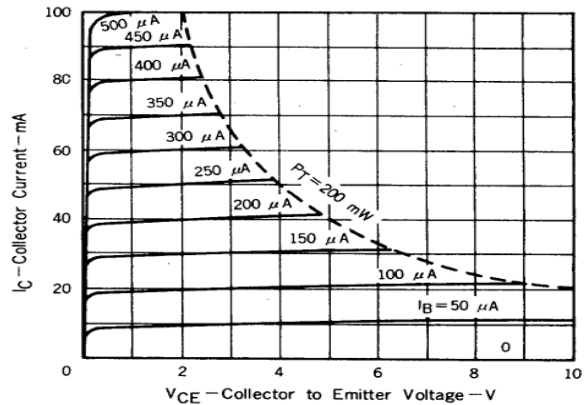


Fig 3. Collector and base saturation voltage vs.
Collector current

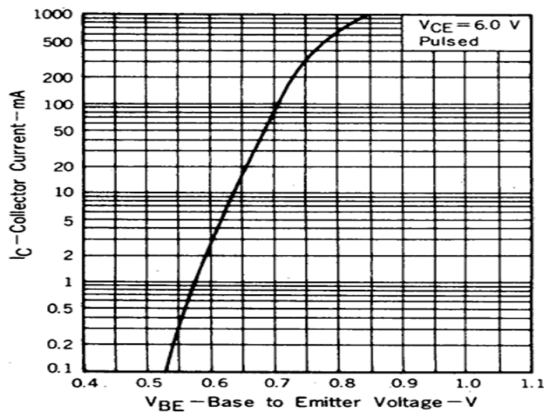


Fig 4. Current to emitter voltage vs. Base current

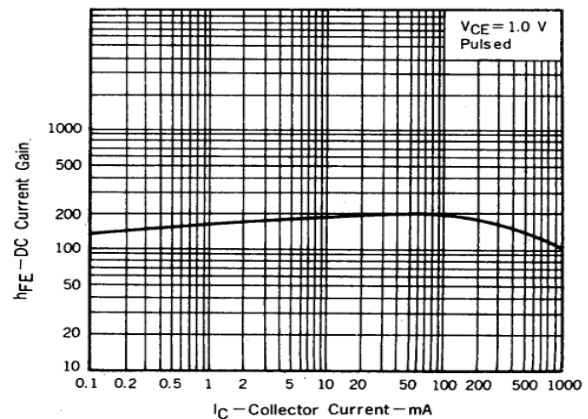


Fig 5. Collector current vs. Base to emitter voltage

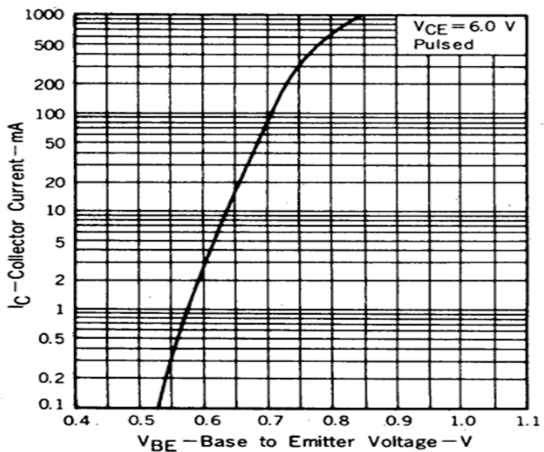
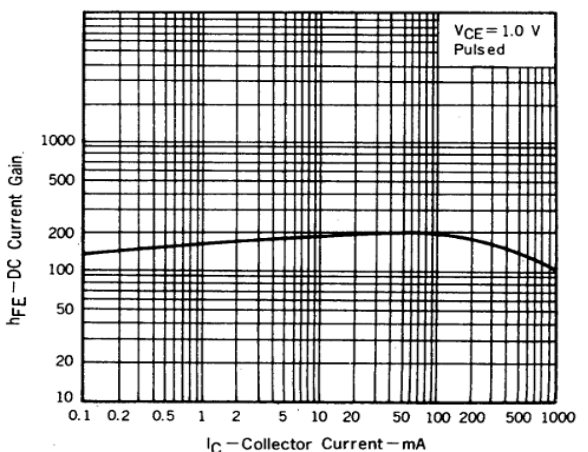


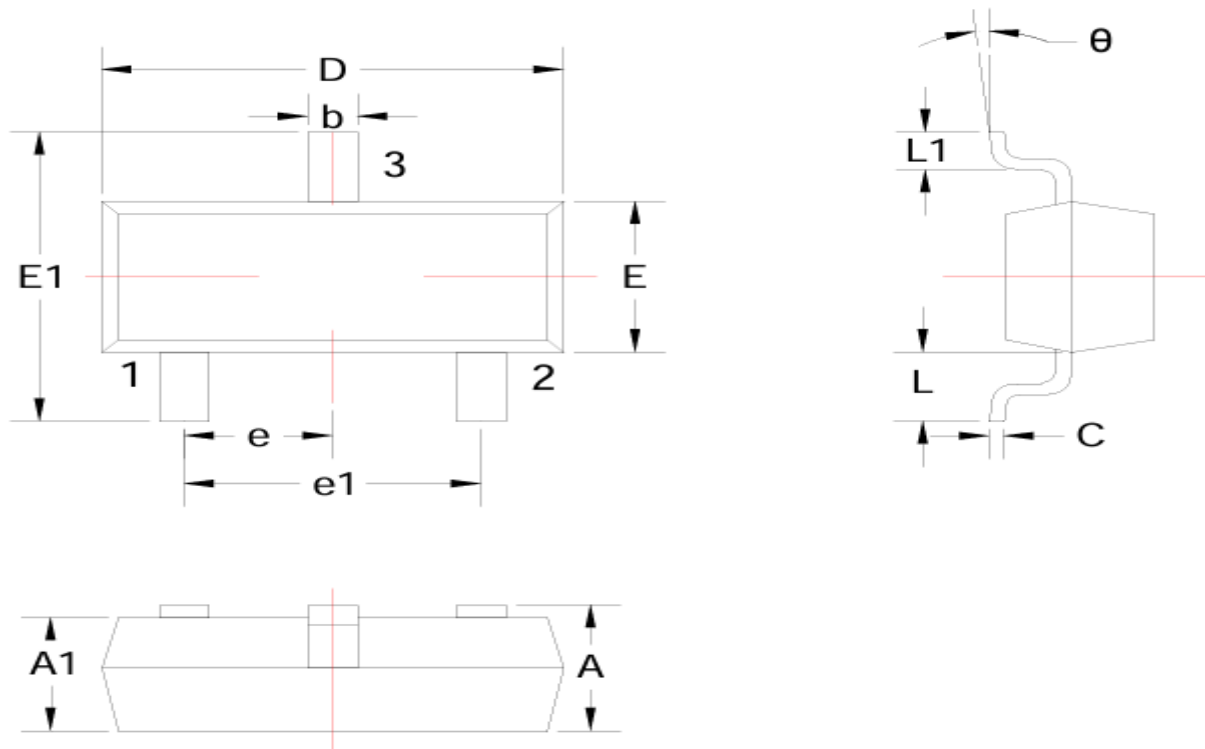
Fig 5. DC current gain vs. Collector current





PACKAGE INFORMATION

Dimension in SOT-23 (Unit: mm)



Symbol	Millimeter	
	Min.	Max.
A	0.900	1.150
A1	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950 TYP.	
e1	1.800	2.000
L	0.550 REF	
L1	0.300	0.500
θ	0°	8°



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