



PNP Transistor Bare Die - SiS953

Rev 1.1
13/10/23

General purpose high voltage amplifier in bare die form
Complement to NPN SiS853

Features:

- -100 Volt V_{CE0}
- Very low $V_{CE(sat)}$
- High gain across wide current range
- High reliability gold back metal
- High reliability tested grades for Military + Space

Ordering Information:

The following part suffixes apply:

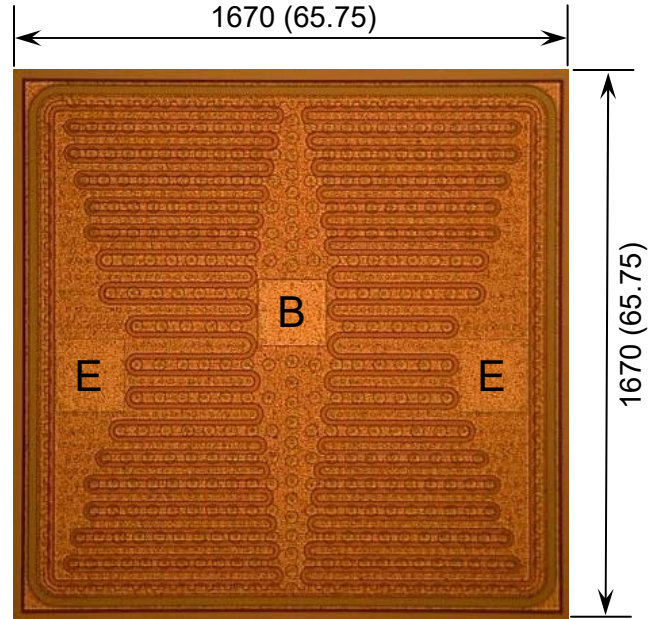
- No suffix - MIL-STD-750 /2072 Visual Inspection
- "H" - MIL-STD-750 /2072 Visual Inspection
+ MIL-STD-38534 Class H LAT
- "K" - MIL-STD-750 /2072 Visual Inspection
+ MIL-STD-38534 Class K LAT

LAT = Lot Acceptance Test.

For further information on LAT process flows see below.

www.siliconsupplies.com/quality/bare-die-lot-qualification

Die Dimensions in μm (mils)



E = EMITTER B = BASE

DIE BACK = COLLECTOR

Supply Formats:

- Default – Die in Waffle Pack (100 per tray capacity)
- Sawn Wafer on Tape – Specific request
- Unsawn Wafer – Specific request
- With additional electrical selection – Specific request
- Sawn as pairs or adjacent pair pick – Specific request

Mechanical Specification

Die Size (Excluding Saw Street)	1670 x 1670 65.75 x 65.75	μm mils
Base Pad Size	200 x 200 7.87 x 7.87	μm mils
Emitter Pad Size	200 x 220 7.87 x 8.66	
Die Thickness	230 (± 20) 9.06 (± 0.79)	μm mils
Top Metal Composition	Al-Si	
Back Metal Composition	Au	





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Absolute Maximum Ratings $T_A = 25^\circ\text{C}$ unless otherwise stated

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	-140	V
Collector-Emitter Voltage	V_{CEO}	-100	V
Emitter-Base Voltage	V_{EBO}	-6	V
Collector Current	I_C	-5	A
Collector Current Pulsed	I_{CM}	-10	A
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to 150	$^\circ\text{C}$

Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise stated

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -100\mu\text{A}$	-140	-170	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -10\text{mA}$	-100	-120	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -100\mu\text{A}$	-6	-9	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB} = -100\text{V}$	-	-	-30	nA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = -6\text{V}$	-	-	-6	nA
ON CHARACTERISTICS						
Forward-Current Transfer Ratio	h_{FE}	$V_{CE} = -1\text{V}, I_C = -10\text{mA}$	110	-	-	-
		$V_{CE} = -1\text{V}, I_C = -1\text{A}$	140	200	300	-
		$V_{CE} = -1\text{V}, I_C = -3\text{A}$	54	70	-	-
		$V_{CE} = -1\text{V}, I_C = -4\text{A}$	33	45	-	-
		$V_{CE} = -1\text{V}, I_C = -10\text{A}$	-	15	-	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -100\text{mA}, I_B = -10\text{mA}$	-	-20	-45	mV
		$I_C = -1\text{A}, I_B = -100\text{mA}$	-	-90	-105	mV
		$I_C = -2\text{A}, I_B = -200\text{mA}$	-	-170	-200	mV
		$I_C = -4\text{A}, I_B = -400\text{mA}$	-	-320	-380	mV
Base Saturation Voltage	$V_{BE(sat)}$	$I_C = -4\text{A}, I_B = -400\text{mA}$	-	-1.06	-1.10	V
		$V_{CE} = -1\text{V}, I_C = -4\text{A}$	-	-0.97	-1.08	V
SMALL SIGNAL CHARACTERISTICS¹						
Transition Frequency	f_T	$V_{CE} = -10\text{V}, I_E = 100\text{mA}$	-	150	-	MHz
Collector Output Capacitance	C_{obo}	$V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$	-	45	-	pF

Note 1: Not production testing in die form. Characterized by chip design and package test.

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