



NPN Transistor Bare Die – 2N3715

Rev 1.0
24/06/26

Bipolar High Power Transistor in bare die form
Complement to PNP 2N3791

Features:

- Collector current up to 10A
- Gain ranges specified at 1A and 3A
- Low $V_{CE(sat)}$: 0.5V (typ) at $I_C = 5A$, $I_B = 0.5A$
- Solderable back metal
- High Reliability tested grades for Military + Space

Ordering Information:

The following part suffixes apply:

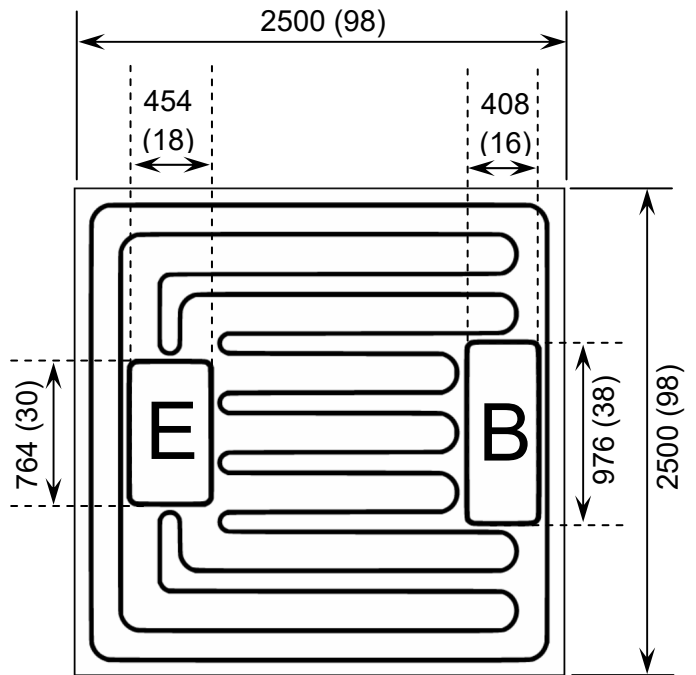
- No suffix - Commercial grade die
- "H" – Hi-rel grade die + MIL-STD-38534 Class H LAT
- "K" – Hi-rel grade die + MIL-STD-38534 Class K LAT.

LAT = Lot acceptance Test.

For information on Hi-Rel LAT flows please see below.

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

Die Dimensions in μm (mils)



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)	2500 x 2500 98 x 98	μm mils
Emitter Pad Size	454 x 764 18 x 30	μm mils
Base Pad Size	408 x 976 19 x 19	μm mils
Die Thickness	250 (± 25) 9.84 (± 1)	μm mils
Top Metal Composition	Al	
Back Metal Composition	Ti/Ni/Ag	





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

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CB0}	80	V
Collector-Emitter Voltage	V_{CEO}	60	V
Emitter-Base Voltage	V_{EBO}	7	V
Collector Current - Continuous	I_C	10	A
Base Current	I_B	4	A
Operating Junction Temperature	T_J	-65 to 150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-65 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	$V_{(BR)CBO}$	$I_E = 0$	80	-	-	V
Collector-Emitter Sustaining Voltage ¹	$V_{CEO(SUS)}$	$I_B = 0, I_C = 200\text{mA}$	60	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_C = 0$	7	-	-	V
Emitter Cut-off Current	I_{CBO}	$V_{CB} = 80\text{V}, I_E = 0$	-	-	10	μA
Emitter Cut-off Current	I_{CEX}	$V_{CE} = 80\text{V}, V_{BE} = -1.5\text{V}$	-	-	1	mA
		$V_{CE} = 60\text{V}, V_{BE} = -1.5\text{V}, T_A = 150^\circ\text{C}$	-	-	10	mA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = 7\text{V}, I_C = 0$	-	-	5	mA
ON CHARACTERISTICS						
Forward-Current Transfer Ratio ¹	h_{FE}	$I_C = 1\text{A}, V_{CE} = 2\text{V}$	50	-	150	-
		$I_C = 3\text{A}, V_{CE} = 2\text{V}$	30	-	-	-
Collector-Emitter Saturation Voltage ¹	$V_{CE(sat)}$	$I_C = 5\text{A}, I_B = 0.5\text{A}$	-	-	0.8	V
Base-Emitter Saturation Voltage ¹	$V_{BE(sat)}$	$I_C = 5\text{A}, I_B = 0.5\text{A}$	-	-	1.5	V
Base-Emitter On Voltage ¹	$V_{BE(on)}$	$I_C = 3\text{A}, V_{CE} = 2\text{V}$	-	-	1.5	V
SMALL SIGNAL CHARACTERISTICS²						
Small-Signal Current Gain	$ h_{fe} $	$V_{CE} = 10\text{V}, I_C = 0.5\text{A}, f = 1\text{MHz}$	4	-	-	-
Rise Time	t_r	$I_C = 5\text{A}, I_{B1} = I_{B2} = 0.5\text{A}$	-	0.45	-	μs
Storage Time	t_s		-	0.30	-	μs
Fall Time	t_f		-	0.40	-	μs

1. Pulsed duration = 300 μs , duty cycle $\leq 2\%$

2. Not production testing in die form, characterized by chip design and package verification

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