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:

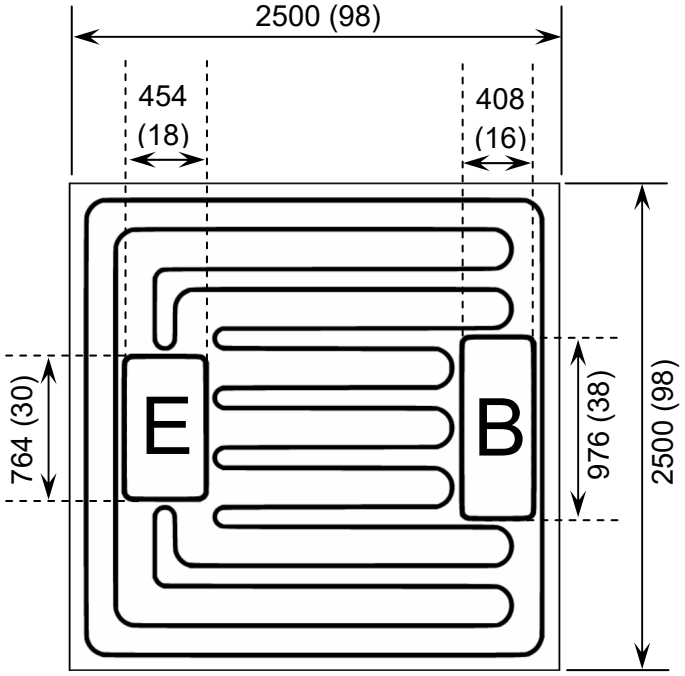
- No suffix - Commercial grade die
- "**H**" – Hi-rel grade die + MIL-STD-38534 Class H LAT
- "**K**" – Hi-rel grade die + MIL-STD-38534 Class K LAT.

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°C unless otherwise stated

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	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	°C
Storage Temperature	T_{stg}	-65 to 150	°C

Electrical Characteristics T_A = 25°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 = 200mA	60	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_C = 0	7	-	-	V
Emitter Cut-off Current	I_{CBO}	V_{CB} = 80V, I_E = 0	-	-	10	µA
Emitter Cut-off Current	I_{CEX}	V_{CE} = 80V, V_{BE} = -1.5V	-	-	1	mA
		V_{CE} = 60V, V_{BE} = -1.5V, T_A = 150°C	-	-	10	mA
Emitter Cut-off Current	I_{EBO}	V_{EB} = 7V, I_C = 0	-	-	5	mA
ON CHARACTERISTICS						
Forward-Current Transfer Ratio[1]	h_{FE}	I_C = 1A, V_{CE} = 2V	50	-	150	-
		I_C = 3A, V_{CE} = 2V	30	-	-	-
Collector-Emitter Saturation Voltage[1]	$V_{CE(sat)}$	I_C = 5A, I_B = 0.5A	-	-	0.8	V
Base-Emitter Saturation Voltage[1]	$V_{BE(sat)}$	I_C = 5A, I_B = 0.5A	-	-	1.5	V
Base-Emitter On Voltage[1]	$V_{BE(on)}$	I_C =3A, V_{CE} = 2V	-	-	1.5	V
SMALL SIGNAL CHARACTERISTICS[2]						
Small-Signal Current Gain	$\|h_{fe}\|$	V_{CE} = 10V, I_C = 0.5A, f = 1 MHz	4	-	-	-
Rise Time	t_r	I_C = 5A, I_{B1} = I_{B2} = 0.5A	-	0.45	-	µs
Storage Time	t_s		-	0.30	-	µs
Fall Time	t_f		-	0.40	-	µs

1. Pulsed duration = 300µs, duty cycle ≤ 2%
2. Not production testing in die form, characterized by chip design and package verification