NPN Transistor Bare Die - 2N918

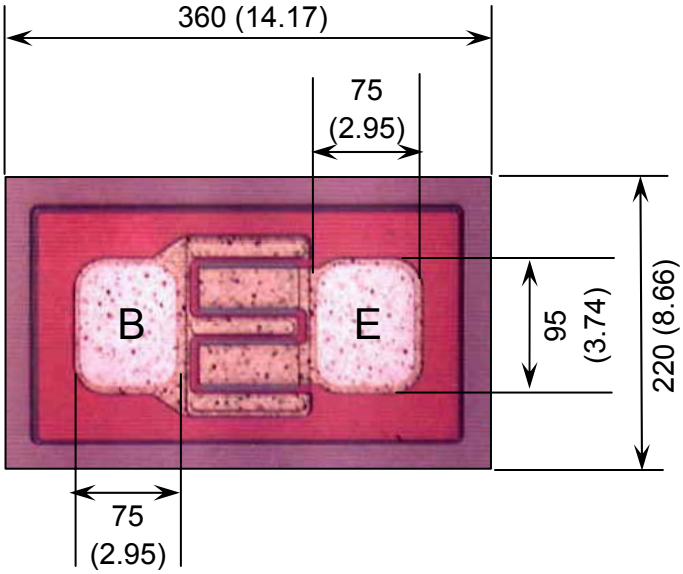
Rev 1.0
02/09/17

Very High Speed Saturated Switch in bare die form
Complement PNP 2N4209 or 2N5771

Features:

- Fast t_{on} + t_{off} switching times
- Characterized at temperature extremes
- High Reliability Gold Back Metal
- High Reliability tested grades for Military + Space

Die Dimensions in µm (mils)



E = EMITTER **B** = BASE

DIE BACK = COLLECTOR

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

Supply Formats:

- Default – Die in Waffle Pack (400 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)	360 x 220 14.17 x 8.66	µm mils
Base Pad Size Emitter Pad Size	75 x 95 2.95 x 3.74	µm mils
Die Thickness	180 (±20) 7.09 (±0.79)	µm mils
Top Metal Composition	Al - 1.3µm	
Back Metal Composition	AuAs - 0.9µm	

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07/07/17

Absolute Maximum Ratings T_A = 25°C unless otherwise stated

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	30	V
Collector-Emitter Voltage	V_{CEO}	15	V
Emitter-Base Voltage	V_{EBO}	3	V
Collector Current	I_C	50	mA
Junction & Storage Temperature	T_J, T_{stg}	-55 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_C = 1µA, I_E = 0	30	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 3mA, I_B = 0	15	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 10µA, I_C = 0	3	-	-	V
Collector Cut-off Current	I_{CBO}	V_{CB} = 15V, I_E = 0	-	-	10	nA
		V_{CB} = 15V, I_E = 0, T_A = 150°C[1]	-	-	1	µA
ON CHARACTERISTICS						
Forward-Current Transfer Ratio	h_{FE}	V_{CE} = 1V, I_C = 3mA	20	-	-	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 10mA, I_B = 1mA	-	-	0.4	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 10mA, I_B = 1mA	-	-	1	V
SMALL-SIGNAL CHARACTERISTICS[1]						
Current-Gain Bandwidth Product	f_T	I_C = 4mA, V_{CE} = 10V, f = 100MHz	600	-	-	MHz
Output Capacitance	C_{obo}	V_{CB} = 10V, I_E = 0, f = 140 kHz	-	-	1.7	pF
		V_{EB} = 0V, I_E = 0, f = 140 kHz	-	-	3	
Input Capacitance	C_{ibo}	V_{EB} = 0.5V, I_C = 0, f = 140 kHz	-	-	2	
Noise Figure	NF	I_C = 1mA, V_{CE} = 6V, R_G = 400Ω, f = 60 MHz	-	-	6	dB
FUNCTIONAL TEST[1]						
Amplifier Power Gain	G_{pe}	V_{CB} = 12V, I_C = 6mA, f = 200 MHz	15	-	-	dB
Power Output	P_o	V_{CB} = 15V, I_C = 8mA, f = 500 MHz	30	-	-	mW
Collector Efficiency	η	V_{CB} = 15V, I_C = 8mA, f = 500 MHz	25	-	-	%

Note 1: Not production testing in die form, characterized by chip design and tested in package.