

RADIATION RESISTANT NPN SILICON POWER TRANSISTORS

SOLITRON DEVICES INC

BR100C BR101C**NPN SILICON POWER TRANSISTORS
RADIATION RESISTANT****10 AMPERES****FEATURES**

HIGH POWER
RADIATION EXPOSURE LEVEL TO $3 \times 10^{14} \text{n/Cm}^2$
TOTAL NEUTRON FLUX EQUIVALENT TO 1 MEV

APPLICATIONS

POWER AMPLIFIER
RADIATION ENVIRONMENTS
ULTRA HIGH FREQUENCY

**TO-111****ABSOLUTE MAXIMUM RATINGS**

		<u>BR100C</u>	<u>BR101C</u>
V_{CB0}	COLLECTOR-BASE VOLTAGE	75 V	90 V
V_{CE0}	COLLECTOR-EMITTER VOLTAGE	60 V	80 V
V_{EB0}	EMITTER-BASE VOLTAGE	5 V	5 V
I_C	CONTINUOUS COLLECTOR CURRENT	10 A	10 A
I_B	CONTINUOUS BASE CURRENT	2 A	2 A
T_J	OPERATING JUNCTION TEMPERATURE	_____ -65°C to +200°C _____	
T_{stg}	STORAGE TEMPERATURE	_____ -65°C to +200°C _____	
$R_{\theta JC}$	THERMAL RESISTANCE, JUNCTION TO CASE	5.0°C/W	
P_D	POWER DISSIPATION (25°C)	35W	

3-85-2R

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BR100C BR101C**ELECTRICAL CHARACTERISTICS (T_C = 25°C UNLESS OTHERWISE NOTED)**

CHARACTERISTICS	SYMBOL	MIN.	MAX.	UNITS
COLLECTOR-BASE BREAKDOWN VOLTAGE (I _{CBO} = 1.0mA) BR100C (I _{CBO} = 1.0mA) BR101C (I _{CBO} = 1.0mA, Note 2) BR100C (I _{CBO} = 1.0mA, Note 2) BR101C	V _{CBO}	75 90 75 90		V V V V
COLLECTOR-EMITTER SUSTAINING VOLTAGE ⁽¹⁾ (I _{CEO} = 50mA) BR100C (I _{CEO} = 50mA) BR101C (I _{CEO} = 50mA, Note 2) BR100C (I _{CEO} = 50mA, Note 2) BR101C	V _{CEO(sus)}	60 80 80 100		V V V V
EMITTER-BASE VOLTAGE (I _{EBO} = 1.0mA) (I _{EBO} = 1.0mA, Note 2)	V _{EBO}	5.0 5.0		V V
COLLECTOR CUTOFF CURRENT (V _{CB} = 50V) (V _{CB} = 50V, Note 2)	I _{CBO}		0.1 0.1	mA mA
EMITTER CUTOFF CURRENT (V _{EB} = 3.0V) (V _{EB} = 3.0V, Note 2)	I _{EBO}		0.1 0.1	mA mA
DC CURRENT GAIN ⁽¹⁾ (V _{CE} = 5.0V, I _C = 0.5A) BR100C (V _{CE} = 5.0V, I _C = 2.0A) BR100C (V _{CE} = 5.0V, I _C = 5.0A) BR100C (V _{CE} = 5.0V, I _C = 0.5A) BR101C (V _{CE} = 5.0V, I _C = 2.0A) BR101C (V _{CE} = 5.0V, I _C = 5.0A) BR101C (V _{CE} = 5.0V, I _C = 0.5A, Note 2) BR100C (V _{CE} = 5.0V, I _C = 2.0A, Note 2) BR100C (V _{CE} = 5.0V, I _C = 5.0A, Note 2) BR100C (V _{CE} = 5.0V, I _C = 0.5A, Note 2) BR101C (V _{CE} = 5.0V, I _C = 2.0A, Note 2) BR101C (V _{CE} = 5.0V, I _C = 5.0A, Note 2) BR101C	h _{FE}	60 75 25 45 70 12 15 15 5.0 20 15 5.0		
COLLECTOR-EMITTER SATURATION VOLTAGE ⁽¹⁾ (I _C = 2.0A, I _B = 0.4A) (I _C = 3.0A, I _B = 0.3A) (I _C = 2.0A, I _B = 0.4A, Note 2) BR100C (I _C = 2.0A, I _B = 0.4A, Note 2) BR101C	V _{CE(sat)}		0.3 1.5 2.0 3.0	V V V V
OUTPUT CAPACITANCE (V _{CB} = 30V, f = 1.0 MHz)	C _{obo}		50	pF
MAGNITUDE OF SMALL SIGNAL GAIN (V _{CE} = 5.0V, I _C = 1.0A, f = 10MHZ)	[h _{FE}]	15		
For typical curves, soar, pulsed operation, Etc. see 2N5529 2N5530* 2N5533 2N5534*.				

(1): Pulsed 300μsec, Duty Cycle ≤ 2%

NOTE 2: After exposure, 1 × 10¹⁴ n/Cm², Flux 1MEV.