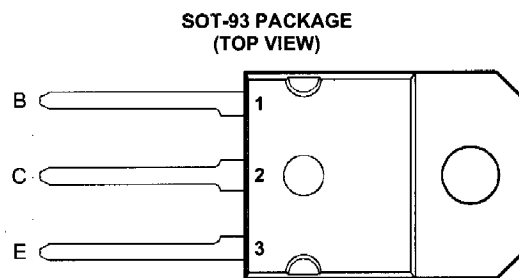


BUV47, BUV47A
NPN SILICON POWER TRANSISTORS

- Rugged Triple-Diffused Planar Construction
- 9 A Continuous Collector Current
- 1000 Volt Blocking Capability

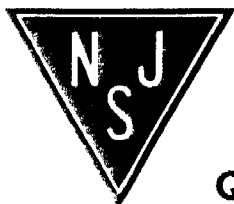


Pin 2 is in electrical contact with the mounting base.

absolute maximum ratings at 25°C case temperature (unless otherwise noted)

RATING		SYMBOL	VALUE	UNIT
Collector-emitter voltage ($V_{BE} = -2.5$ V)	BUV47	V_{CEX}	850	V
	BUV47A		1000	
Collector-emitter voltage ($R_{BE} = 10 \Omega$)	BUV47	V_{CER}	850	V
	BUV47A		1000	
Collector-emitter voltage ($I_B = 0$)	BUV47	V_{CEO}	400	V
	BUV47A		450	
Continuous collector current		I_C	9	A
Peak collector current (see Note 1)		I_{CM}	15	A
Continuous base current		I_B	3	A
Peak base current		I_{BM}	6	A
Continuous device dissipation at (or below) 25°C case temperature		P_{tot}	120	W
Operating junction temperature range		T_j	-65 to +150	°C
Storage temperature range		T_{stg}	-65 to +150	°C

NOTE 1: This value applies for $t_p \leq 5$ ms, duty cycle $\leq 2\%$.



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

Quality Semi-Conductors

BUV47, BUV47A

NPN SILICON POWER TRANSISTORS

electrical characteristics at 25°C case temperature (unless otherwise noted)

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
$V_{CE(sus)}$ Collector-emitter sustaining voltage	$I_C = 200 \text{ mA}$ $L = 25 \text{ mH}$ (see Note 2) BUV47 BUV47A	400 450			V
$V_{(BR)EBO}$ Base-emitter breakdown voltage	$I_E = 50 \text{ mA}$ $I_C = 0$ (see Note 3)	7		30	V
I_{CES} Collector-emitter cut-off current	$V_{CE} = 850 \text{ V}$ $V_{BE} = 0$ BUV47			0.15	mA
	$V_{CE} = 1000 \text{ V}$ $V_{BE} = 0$ BUV47A			0.15	
	$V_{CE} = 850 \text{ V}$ $V_{BE} = 0$ $T_C = 125^\circ\text{C}$ BUV47			1.5	
	$V_{CE} = 1000 \text{ V}$ $V_{BE} = 0$ $T_C = 125^\circ\text{C}$ BUV47A			1.5	
I_{CER} Collector-emitter cut-off current	$V_{CE} = 850 \text{ V}$ $R_{BE} = 10 \Omega$ BUV47			0.4	mA
	$V_{CE} = 1000 \text{ V}$ $R_{BE} = 10 \Omega$ BUV47A			0.4	
	$V_{CE} = 850 \text{ V}$ $R_{BE} = 10 \Omega$ $T_C = 125^\circ\text{C}$ BUV47			3.0	
	$V_{CE} = 1000 \text{ V}$ $R_{BE} = 10 \Omega$ $T_C = 125^\circ\text{C}$ BUV47A			3.0	
I_{EBO} Emitter cut-off current	$V_{EB} = 5 \text{ V}$ $I_C = 0$			1	mA
$V_{CE(sat)}$ Collector-emitter saturation voltage	$I_B = 1 \text{ A}$ $I_C = 5 \text{ A}$ (see Notes 3 and 4)			1.5	V
	$I_B = 2.5 \text{ A}$ $I_C = 8 \text{ A}$			3.0	
$V_{BE(sat)}$ Base-emitter saturation voltage	$I_B = 1 \text{ A}$ $I_C = 5 \text{ A}$ (see Notes 3 and 4)			1.6	V
f_t Current gain bandwidth product	$V_{CE} = 10 \text{ V}$ $I_C = 0.5 \text{ A}$ $f = 1 \text{ MHz}$		8		MHz
C_{ob} Output capacitance	$V_{CB} = 20 \text{ V}$ $I_C = 0$ $f = 0.1 \text{ MHz}$		105		pF

NOTES: 2. Inductive loop switching measurement.

3. These parameters must be measured using pulse techniques, $t_p = 300 \mu\text{s}$, duty cycle $\leq 2\%$.

4. These parameters must be measured using voltage-sensing contacts, separate from the current carrying contacts.

thermal characteristics

PARAMETER	MIN	TYP	MAX	UNIT
$R_{\theta JC}$ Junction to case thermal resistance			1	$^\circ\text{C/W}$

resistive-load-switching characteristics at 25°C case temperature

PARAMETER	TEST CONDITIONS †	MIN	TYP	MAX	UNIT
t_{on} Turn on time	$I_C = 5 \text{ A}$ $I_{B(on)} = 1 \text{ A}$ $I_{B(off)} = -1 \text{ A}$ $V_{CC} = 150 \text{ V}$ (see Figures 1 and 2)			1.0	μs
t_s Storage time				3.0	μs
t_f Fall time				0.8	μs

† Voltage and current values shown are nominal; exact values vary slightly with transistor parameters.

inductive-load-switching characteristics at 25°C case temperature (unless otherwise noted)

PARAMETER	TEST CONDITIONS †	MIN	TYP	MAX	UNIT
t_{sv} Voltage storage time	$I_C = 5 \text{ A}$ $I_{B(on)} = 1 \text{ A}$ $V_{BE(off)} = -5 \text{ V}$ $T_C = 100^\circ\text{C}$ (see Figures 3 and 4)			4.0	μs
t_{fi} Current fall time				0.4	μs

BUV47, BUV47A NPN SILICON POWER TRANSISTORS

PARAMETER MEASUREMENT INFORMATION

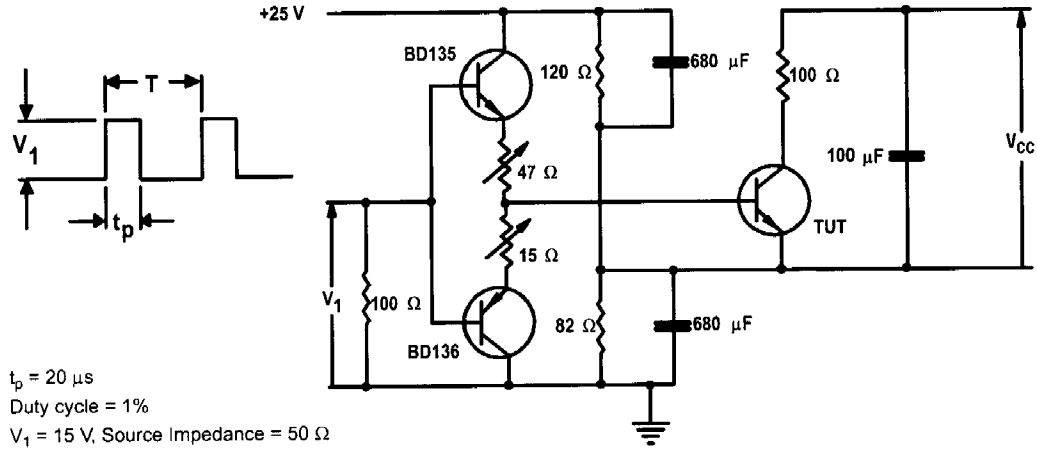


Figure 1. Resistive-Load Switching Test Circuit

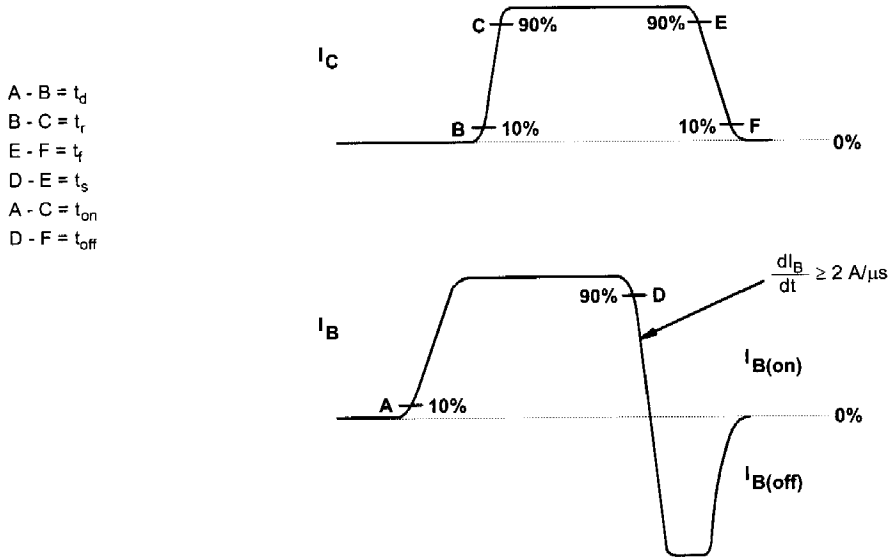


Figure 2. Resistive-Load Switching Waveforms

