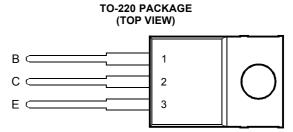
BUPD1520 NPN SILICON TRANSISTOR WITH INTEGRATED DIODE

MAY 1999 - REVISED SEPTEMBER 1999

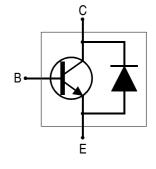
- Designed for Self Oscillating Inverter Applications
- Rugged 1500 V Planar Construction
- Integral Free-Wheeling Anti-Parallel Diode



Pin 2 is in electrical contact with the mounting base.

MDTRACA

device symbol



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

RATING	SYMBOL	VALUE	UNIT
Collector-emitter voltage $(I_B = 0)$	V _{CEO}	700	V
Collector-emitter voltage (V _{BE} = 0)	V _{CES}	1500	V
Emitter-base voltage ($I_C = 0$)	V _{EBO}	11	V
Continuous collector current	۱ _C	2	A
Peak collector current (see Note 1)	I _{CM}	2.5	A
Continuous base current	Ι _Β	2	A
Peak base current (see Note 1)	I _{BM}	2.5	A
Continuous device dissipation at (or below) 25°C case temperature	P _{tot}	50	W
Operating junction temperature range	Тj	-55 to +125	°C
Storage temperature range	T _{stg}	-55 to +150	°C
Lead temperature 3.2 mm from case for 10 seconds	TL	300	°C

NOTE 1: This value applies for $t_p = 10$ ms, duty cycle $\leq 2\%$.



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electrical characteristics at 25°C case temperature

	PARAMETER		TEST CONDITION	NS	MIN	ТҮР	MAX	UNIT
V _{CEO}	Collector-emitter voltage	I _C = 1 mA			700			V
V _{CBO}	Collector-base voltage	I _C = 100 μA			1500			V
V _{EBO}	Emitter-base voltage	I _{EB} = 1 mA			11			V
I _{CEO}	Collector cut-off current	V _{CE} = 700 V	I _B = 0				100	μA
I _{CES}	Collector-emitter cut-off current	V _{CE} = 1500 V	$V_{BE} = 0$				100	μA
I _{EBO}	Emitter cut-off current	V _{EB} = 11 V	l _C = 0				1	mA
V _{BE(sat)}	Base-emitter saturation voltage	$I_{B} = 100 \text{ mA}$ $I_{B} = 100 \text{ mA}$ $I_{B} = 400 \text{ mA}$	$I_{\rm C} = 500 \text{ mA}$ $I_{\rm C} = 1 \text{ A}$ $I_{\rm C} = 2 \text{ A}$	(see Notes 2 and 3)			1.0 1.1 1.2	V
V _{CE(sat)}	Collector-emitter saturation voltage	$I_B = 50 \text{ mA}$ $I_B = 100 \text{ mA}$	l _C = 250 mA l _C = 500 mA	(see Notes 2 and 3)		0.3 0.7	1.2 3.0	V
h _{FE}	Forward current transfer ratio	$V_{CE} = 5 V$ $V_{CE} = 5 V$ $V_{CE} = 5 V$	$I_{C} = 10 \text{ mA}$ $I_{C} = 100 \text{ mA}$ $I_{C} = 250 \text{ mA}$	(see Notes 2 and 3)	10 10 10	21 25 25		
		$V_{CE} = 5 V$	$I_{\rm C} = 500 \rm mA$		7	18		

NOTES: 2. These parameters must be measured using pulse techniques, t_p = 300 $\mu s,$ duty cycle \leq 2%.

3. These parameters must be measured using voltage-sensing contacts, separate from the current carrying contacts, and located within 3.2 mm from the device body.

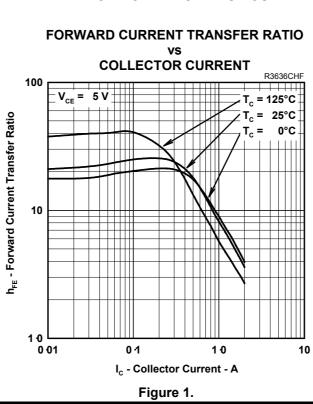
thermal characteristics

PARAMETER			ТҮР	MAX	UNIT
R_{\thetaJA}	Junction to free air thermal resistance			62.5	°C/W
$R_{\theta JC}$	Junction to case thermal resistance			2	°C/W

resistive switching characteristics at 25°C case temperature

	PARAMETER	TEST CONDITIONS			MIN	ТҮР	MAX	UNIT
t _d	Delay time					0.1		μs
t _r	Rise time	I _C = 500 mA	$I_{B(on)} = 50 \text{ mA}$	t _p = 300 μs		0.6		μs
t _s	Storage time	V _{CC} = 125 V	$I_{B(off)} = 250 \text{ mA}$	Duty cycle = 2%		1.0		μs
t _f	Fall time					0.2		μs

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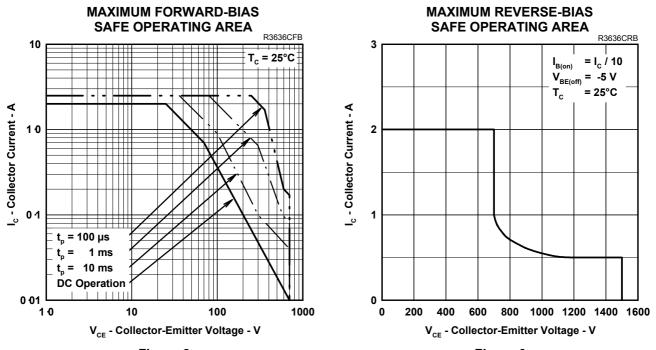


Figure 2.

Figure 3.



PRODUCT INFORMATION

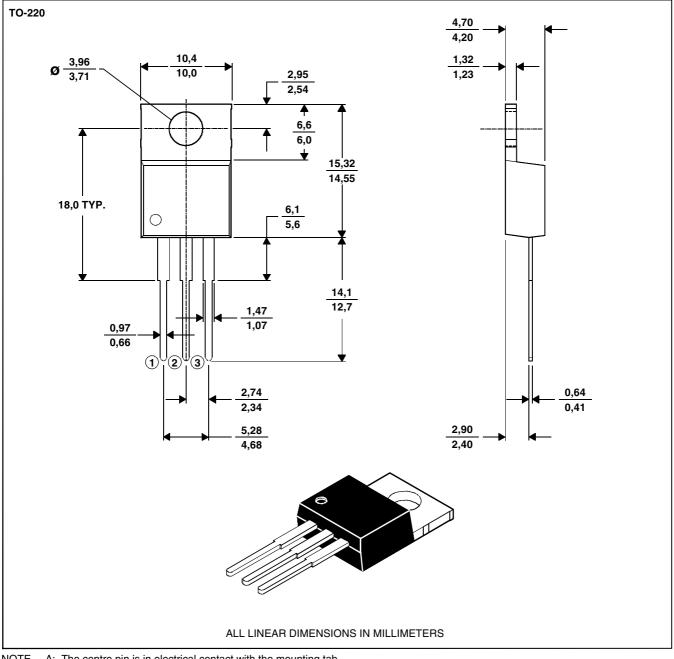
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MECHANICAL DATA

TO-220

3-pin plastic flange-mount package

This single-in-line package consists of a circuit mounted on a lead frame and encapsulated within a plastic compound. The compound will withstand soldering temperature with no deformation, and circuit performance characteristics will remain stable when operated in high humidity conditions. Leads require no additional cleaning or processing when used in soldered assembly.



NOTE A: The centre pin is in electrical contact with the mounting tab.

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