

- Designed for Complementary Use with BDW63, BDW63A, BDW63B, BDW63C and BDW63D
- 60 W at 25°C Case Temperature
- 6 A Continuous Collector Current
- Minimum h_{FE} of 750 at 3V, 2 A

TO-220 PACKAGE (TOP VIEW) B C E 3

Pin 2 is in electrical contact with the mounting base.

MDTRACA

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

RATING	SYMBOL	VALUE	UNIT	
	BDW64		-45	
	BDW64A		-60	
Collector-base voltage ($I_E = 0$)	BDW64B	V_{CBO}	-80	V
	BDW64C		-100	
	BDW64D		-120	
	BDW64		-45	
	BDW64A		-60	
Collector-emitter voltage (I _B = 0) (see Note 1)	BDW64B	$V_{\sf CEO}$	-80	V
	BDW64C		-100	
	BDW64D		-120	
Emitter-base voltage	V _{EBO}	-5	V	
Continuous collector current	I _C	-6	Α	
Continuous base current	I _B	-0.1	Α	
Continuous device dissipation at (or below) 25°C case temperature (see Note 2)	P _{tot}	60	W	
Continuous device dissipation at (or below) 25°C free air temperature (see Note	P _{tot}	2	W	
Unclamped inductive load energy (see Note 4)	½LI _C ²	50	mJ	
Operating junction temperature range	T _j	-65 to +150	ô	
Operating temperature range	T _{stg}	-65 to +150	ô	
Operating free-air temperature range	T _A	-65 to +150	ç	

NOTES: 1. These values apply when the base-emitter diode is open circuited.

- 2. Derate linearly to 150°C case temperature at the rate of 0.48 W/°C.
- 3. Derate linearly to 150°C free air temperature at the rate of 16 mW/°C.
- 4. This rating is based on the capability of the transistor to operate safely in a circuit of: L = 20 mH, $I_{B(on)}$ = -5 mA, R_{BE} = 100 Ω , $V_{BE(off)}$ = 0, R_S = 0.1 Ω , V_{CC} = -20 V.



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

	PARAMETER		TEST	CONDITIONS		MIN	TYP	MAX	UNIT
V _{(BR)CEO}	Collector-emitter breakdown voltage	I _C = -30 mA	I _B = 0	(see Note 5)	BDW64 BDW64A BDW64B BDW64C BDW64D	-45 -60 -80 -100 -120			٧
I _{CEO}	Collector-emitter cut-off current	$V_{CE} = -30 \text{ V}$ $V_{CE} = -30 \text{ V}$ $V_{CE} = -40 \text{ V}$ $V_{CE} = -50 \text{ V}$ $V_{CE} = -60 \text{ V}$	$I_B = 0$ $I_B = 0$		BDW64 BDW64A BDW64B BDW64C BDW64D	120		-0.5 -0.5 -0.5 -0.5 -0.5	mA
I _{CBO}	Collector cut-off current	$V_{CB} = -120 \text{ V}$ $V_{CB} = -45 \text{ V}$ $V_{CB} = -60 \text{ V}$ $V_{CB} = -80 \text{ V}$	I _E = 0 I _E = 0	$T_{C} = 150^{\circ}\text{C}$	BDW64 BDW64A BDW64B BDW64C BDW64D BDW64 BDW64A BDW64A BDW64B BDW64C BDW64D			-0.2 -0.2 -0.2 -0.2 -0.2 -5 -5 -5 -5	mA
I _{EBO}	Emitter cut-off current	V _{EB} = -5 V	I _C = 0					-2	mA
h _{FE}	Forward current transfer ratio	$V_{CE} = -3 V$ $V_{CE} = -3 V$	-	(see Notes 5 and 6)		750 100		20000	
V _{BE(on)}	Base-emitter voltage	V _{CE} = -3 V	I _C = -2 A	(see Notes 5 and 6)				-2.5	V
V _{CE(sat)}	Collector-emitter saturation voltage	$I_B = -12 \text{ mA}$ $I_B = -60 \text{ mA}$	-	(see Notes 5 and 6)				-2.5 -4	V
V _{EC}	Parallel diode forward voltage	I _E = -6 A	I _B = 0					-3.5	V

NOTES: 5. These parameters must be measured using pulse techniques, $t_0 = 300 \mu s$, duty cycle $\leq 2\%$.

thermal characteristics

	PARAMETER			MAX	UNIT
$R_{\theta JC}$	Junction to case thermal resistance			2.08	°C/W
$R_{\theta JA}$	Junction to free air thermal resistance			62.5	°C/W

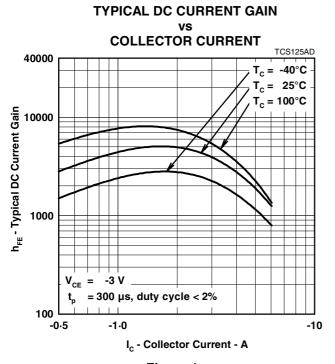
resistive-load-switching characteristics at 25°C case temperature

	PARAMETER	TEST CONDITIONS †			MIN	TYP	MAX	UNIT
t _{on}	Turn-on time	I _C = -3 A	$I_{B(on)} = -12 \text{ mA}$	$I_{B(off)} = 12 \text{ mA}$		1		μs
t _{off}	Turn-off time	$V_{BE(off)} = 4.5 \text{ V}$	$R_L = 10 \Omega$	$t_p = 20 \ \mu s, \ dc \le 2\%$		5		μs

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

^{6.} These parameters must be measured using voltage-sensing contacts, separate from the current carrying contacts.

TYPICAL CHARACTERISTICS



COLLECTOR-EMITTER SATURATION VOLTAGE

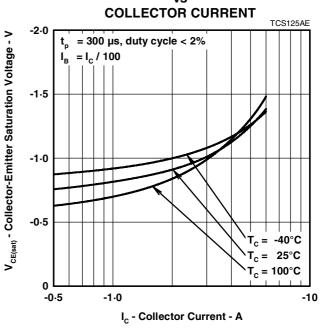
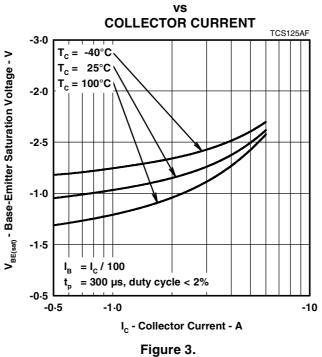


Figure 1.

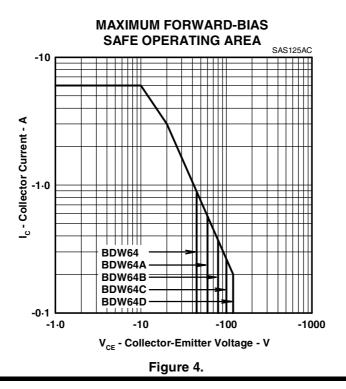
Figure 2.

BASE-EMITTER SATURATION VOLTAGE



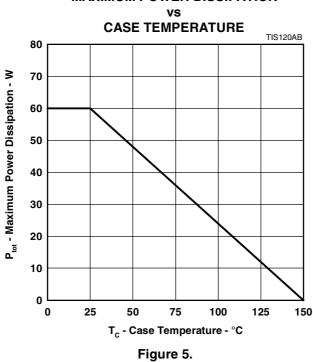
PRODUCT INFORMATION

MAXIMUM SAFE OPERATING REGIONS



THERMAL INFORMATION

MAXIMUM POWER DISSIPATION



PRODUCT INFORMATION