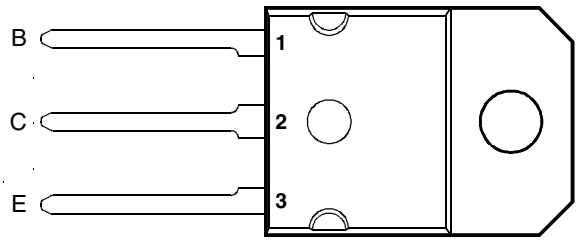
BOURNS®

- **Designed for Complementary Use with BDV65, BDV65A, BDV65B and BDV65C**
- **125 W at 25°C Case Temperature**
- **12 A Continuous Collector Current**
- **Minimum h_{FE} of 1000 at 4 V, 5 A**

SOT-93 PACKAGE
(TOP VIEW)



Pin 2 is in electrical contact with the mounting base.

MDTRAA

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

RATING		SYMBOL	VALUE	UNIT
Collector-base voltage (I_E = 0)	BDV64	V_{CBO}	-60	V
	BDV64A		-80	
	BDV64B		-100	
	BDV64C		-120	
Collector-emitter voltage (I_B = 0)	BDV64	V_{CEO}	-60	V
	BDV64A		-80	
	BDV64B		-100	
	BDV64C		-120	
Emitter-base voltage		V_{EBO}	-5	V
Continuous collector current		I_C	-12	A
Peak collector current (see Note 1)		I_{CM}	-15	A
Continuous base current		I_B	-0.5	A
Continuous device dissipation at (or below) 25°C case temperature (see Note 2)		P_{tot}	125	W
Continuous device dissipation at (or below) 25°C free air temperature (see Note 3)		P_{tot}	3.5	W
Operating junction temperature range		T_j	-65 to +150	°C
Storage temperature range		T_{stg}	-65 to +150	°C
Lead temperature 3.2 mm from case for 10 seconds		T_L	260	°C

NOTES: 1. This value applies for $t_p \leq 0.1$ ms, duty cycle ≤ 10%
2. Derate linearly to 150°C case temperature at the rate of 0.56 W/°C.
3. Derate linearly to 150°C free air temperature at the rate of 28 mW/°C.

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 4)	BDV64	-60			V
					BDV64A	-80			
					BDV64B	-100			
					BDV64C	-120			
I_{CEO}	Collector-emitter cut-off current	V_{CB} = -30 V	I_B = 0		BDV64			-2	mA
		V_{CB} = -40 V	I_B = 0		BDV64A			-2	
		V_{CB} = -50 V	I_B = 0		BDV64B			-2	
		V_{CB} = -60 V	I_B = 0		BDV64C			-2	
I_{CBO}	Collector cut-off current	V_{CB} = -60 V	I_E = 0		BDV64			-0.4	mA
		V_{CB} = -80 V	I_E = 0		BDV64A			-0.4	
		V_{CB} = -100 V	I_E = 0		BDV64B			-0.4	
		V_{CB} = -120 V	I_E = 0		BDV64C			-0.4	
		V_{CB} = -30 V	I_E = 0	T_C = 150°C	BDV64			-2	
		V_{CB} = -40 V	I_E = 0	T_C = 150°C	BDV64A			-2	
		V_{CB} = -50 V	I_E = 0	T_C = 150°C	BDV64B			-2	
		V_{CB} = -60 V	I_E = 0	T_C = 150°C	BDV64C			-2	
I_{EBO}	Emitter cut-off current	V_{EB} = -5 V	I_C = 0					-5	mA
h_{FE}	Forward current transfer ratio	V_{CE} = -4 V	I_C = -5 A	(see Notes 4 and 5)		1000			
$V_{CE(sat)}$	Collector-emitter saturation voltage	I_B = -20 mA	I_C = -5 A	(see Notes 4 and 5)				-2	V
V_{BE}	Base-emitter voltage	V_{CE} = -4 V	I_C = -5 A	(see Notes 4 and 5)				-2.5	V
V_{EC}	Parallel diode forward voltage	I_E = -10 A	I_B = 0	(see Notes 4 and 5)				-3.5	V

NOTES: 4. These parameters must be measured using pulse techniques, t_p = 300 µs, duty cycle ≤ 2%.
5. 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	°C/W
$R_{\theta JA}$	Junction to free air thermal resistance			35.7	°C/W

BOURNS®

TYPICAL CHARACTERISTICS

TYPICAL DC CURRENT GAIN vs COLLECTOR CURRENT

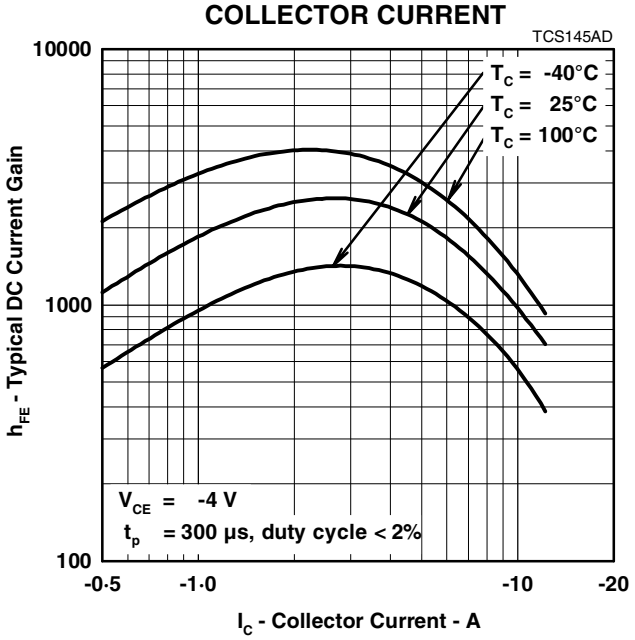


Figure 1.

COLLECTOR-EMITTER SATURATION VOLTAGE vs COLLECTOR CURRENT

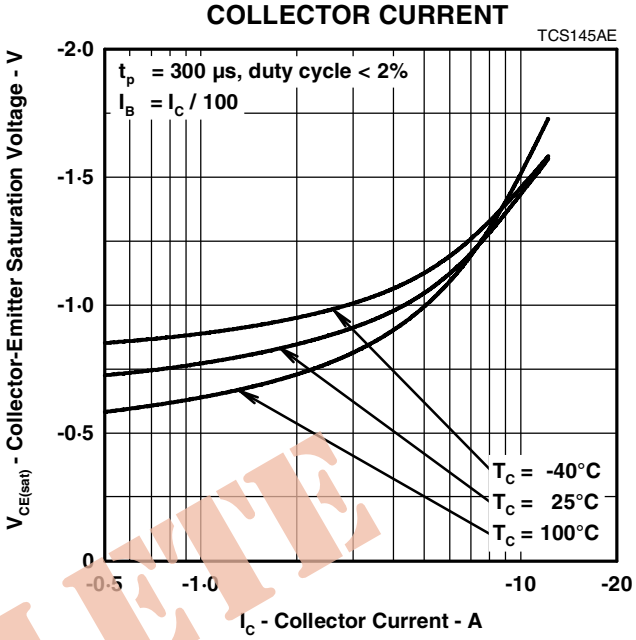


Figure 2.

BASE-EMITTER SATURATION VOLTAGE vs COLLECTOR CURRENT

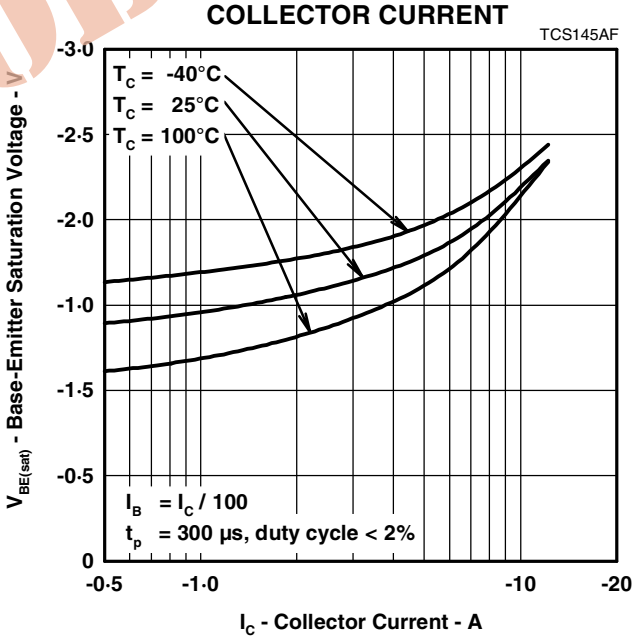


Figure 3.

THERMAL INFORMATION

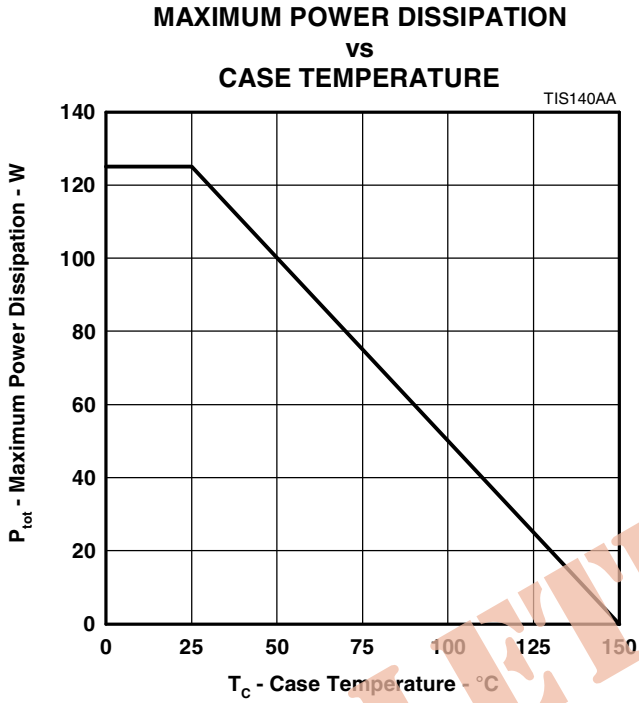


Figure 4.