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TIP2955-S

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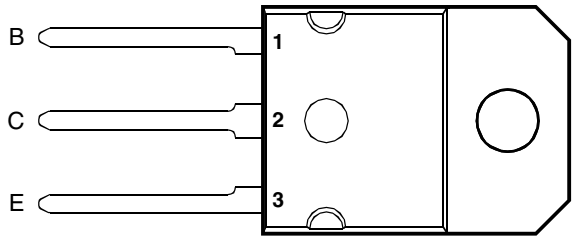
TIP2955
PNP SILICON POWER TRANSISTOR

BOURNS®

- **Designed for Complementary Use with the TIP3055 Series**
- **90 W at 25°C Case Temperature**
- **15 A Continuous Collector Current**
- **Customer-Specified Selections Available**

SOT-93 PACKAGE
(TOP VIEW)



Pin 2 is in electrical contact with the mounting base.

MDTRAAA

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

RATING	SYMBOL	VALUE	UNIT
Collector-base voltage (I_E = 0)	V_{CBO}	-100	V
Collector-emitter voltage (I_B = 0) (see Note 1)	V_{CER}	-70	V
Emitter-base voltage	V_{EBO}	-7	V
Continuous collector current	I_C	-15	A
Continuous base current	I_B	-7	A
Continuous device dissipation at (or below) 25°C case temperature (see Note 2)	P_{tot}	90	W
Continuous device dissipation at (or below) 25°C free air temperature (see Note 3)	P_{tot}	3.5	W
Unclamped inductive load energy (see Note 4)	$½LI_C^2$	62.5	mJ
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 when the base-emitter resistance R_{BE} = 100 Ω.
2. Derate linearly to 150°C case temperature at the rate of 0.72 W/°C.
3. Derate linearly to 150°C free air temperature at the rate of 28 mW/°C.
4. This rating is based on the capability of the transistor to operate safely in a circuit of: L = 20 mH, $I_{B(on)}$ = -0.4 A, R_{BE} = 100 Ω, $V_{BE(off)}$ = 0, R_S = 0.1 Ω, V_{CC} = -10 V.

PRODUCT INFORMATION

electrical characteristics at 25°C case temperature

PARAMETER		TEST CONDITIONS			MIN	TYP	MAX	UNIT
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	I_C = -30 mA	I_B = 0	(see Note 5)	-60			V
I_{CEO}	Collector cut-off current	V_{CE} = -30 V	I_B = 0				-0.7	mA
I_{CEV}	Voltage between base and emitter	V_{CE} = -100 V	V_{BE} = 1.5 V				-5	mA
I_{EBO}	Emitter cut-off current	V_{EB} = -7 V	I_C = 0				-5	mA
h_{FE}	Forward current transfer ratio	V_{CE} = -4 V V_{CE} = -4 V	I_C = - 4A I_C = -10 A	(see Notes 5 and 6)	20 5		70	
$V_{CE(sat)}$	Collector-emitter saturation voltage	I_B = -0.4 A I_B = -3.3 A	I_C = - 4A I_C = -10 A	(see Notes 5 and 6)			-1.1 -3	V
V_{BE}	Base-emitter voltage	V_{CE} = -4 V	I_C = -4 A	(see Notes 5 and 6)			-1.8	V
h_{fe}	Small signal forward current transfer ratio	V_{CE} = -10 V	I_C = -0.5 A	f = 1 kHz	20			
$\|h_{fe}\|$	Small signal forward current transfer ratio	V_{CE} = -10 V	I_C = -0.5 A	f = 1 MHz	3			

NOTES: 5. These parameters must be measured using pulse techniques, t_p = 300 µs, duty cycle ≤ 2%.
6. 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			1.39	°C/W
$R_{\theta JA}$	Junction to free air thermal resistance			35.7	°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 = -6 A	$I_{B(on)}$ = -0.6 A	$I_{B(off)}$ = 0.6 A		0.4		µs
t_{off}	Turn-off time	$V_{BE(off)}$ = 4 V	R_L = 5 Ω	t_p = 20 µs, dc ≤ 2%		0.7		µs

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

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TYPICAL CHARACTERISTICS

TYPICAL DC CURRENT GAIN vs COLLECTOR CURRENT

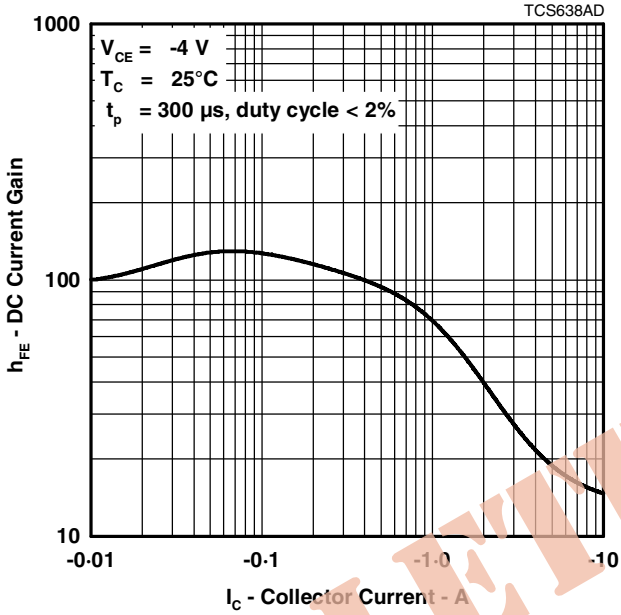

Figure 1.

MAXIMUM SAFE OPERATING REGIONS

MAXIMUM FORWARD-BIAS SAFE OPERATING AREA

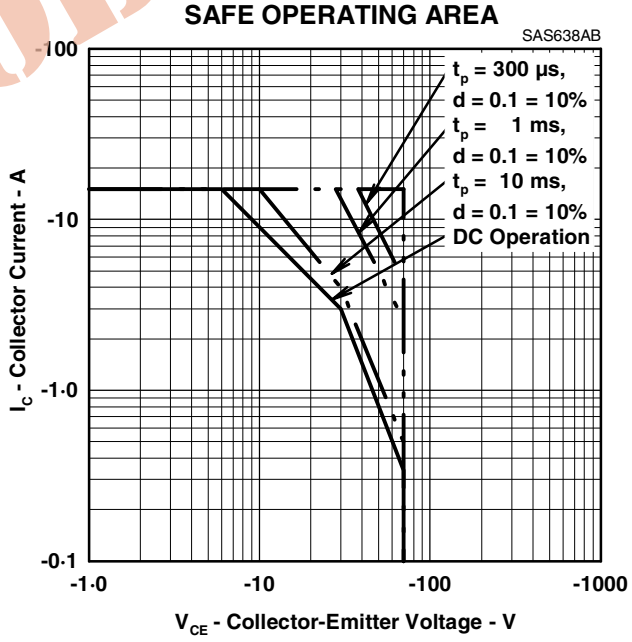

Figure 2.

THERMAL INFORMATION

MAXIMUM POWER DISSIPATION vs CASE TEMPERATURE

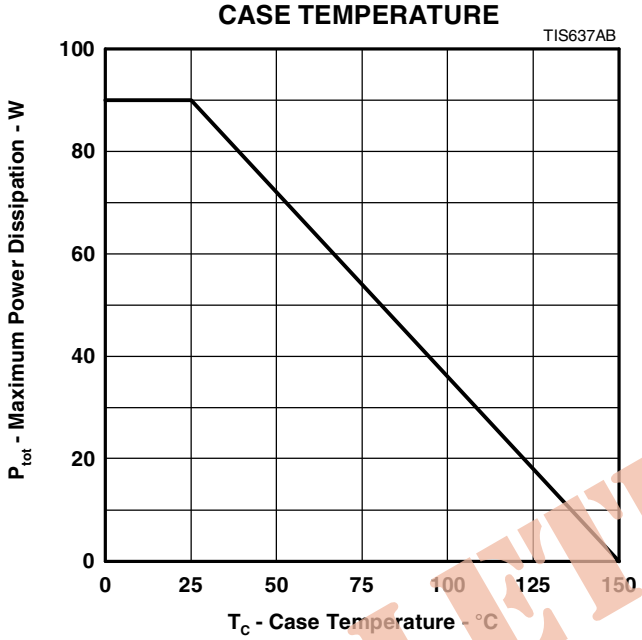

Figure 3.