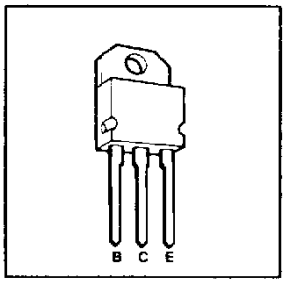
TIP2955
PNP SILICON POWER TRANSISTORS

SLPS063 Revised March 1990

- **Designed for Complementary Use with TIP3055**
- **90 W at 25°C Case Temperature**
- **15 A Rated Collector Current**
- **Designed for Automotive Ignition, Linear Amplifier and Power Amplifier Applications**



PACKAGE: SOT93

Absolute Maximum Ratings at 25°C Case Temperature (unless otherwise noted)

		TIP2955
V_{CBO}	Collector - base voltage (I_E = 0)	-100 V
V_{CER}	Collector - emitter voltage (R_{BE} = 100 Ω)	-70 V
V_{EBO}	Base - emitter voltage	-7 V
I_C	Continuous collector current	-15 A
I_B	Continuous base current	-7 A
P_{tot}	Continuous device dissipation at (or below) 25°C case temperature (Note 1)	90 W
P_{tot}	Continuous device dissipation at (or below) 25°C free - air temperature (Note 3)	3.5 W
$I_C^2L/2$	Unclamped inductive load energy (Note 3)	62.5 mJ
T_J & T_{stg}	Operating junction and storage temperature range	-65°C to + 150°C
T_L	Lead temperature 3.2 mm from case for 10 seconds	260°C

NOTES: 1. Derate linearly to 150°C case temperature at the rate of 0.72 W/°C.
2. Derate linearly to 150°C free - air - temperature at the rate of 28 mW/°C.
3. This rating is based on the capability of the transistor to operate safely in a circuit of: L = 20 mH, R_{BB2} = 100 Ω, V_{BB2} = 0 V, R_S = 0.1 Ω, V_{CC} = -10 V. Energy = $I_C^2L/2$.

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 (Note 4)	I_B = 0		-60			V
I_{CEO}	Collector - emitter 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 = -4 A I_C = -10 A	(Notes 4 & 5)	20 5		70	
$V_{CE(sat)}$	Collector - emitter saturation voltage	I_B = -0.4 A I_B = -3.3 A	I_C = -4 A I_C = -10 A	(Notes 4 & 5)			-1.1 -3	V
V_{BE}	Base - emitter voltage	V_{CE} = -4 V	I_C = -4 A	(Notes 4 & 5)			-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: 4. These parameters must be measured using pulse techniques, t_w = 300μs, duty cycle ≤ 2%.
5. These parameters must be measured using voltage sensing contacts separate from the current - carrying contacts located within 3.2mm from the device body.
6. This combination of maximum voltage and current may be achieved only when switching from saturation to cutoff with a clamped inductive load.

TEXAS INSTRUMENTS

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

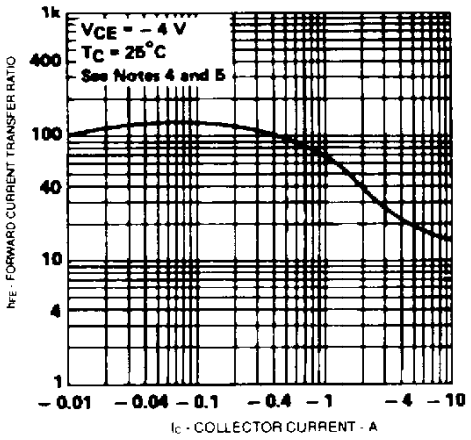
Resistive - Load - Switching Characteristics at 25°C Case Temperature (unless otherwise noted)

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			0.7		µs

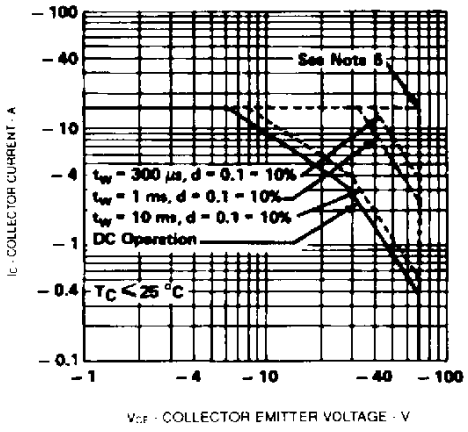
† Voltage and current values shown are nominal; exact values vary slightly with transistor parameters.

TYPICAL CHARACTERISTICS

FORWARD CURRENT TRANSFER RATIO
vs
COLLECTOR CURRENT



MAXIMUM FORWARD - BIAS
SAFE OPERATING AREA



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