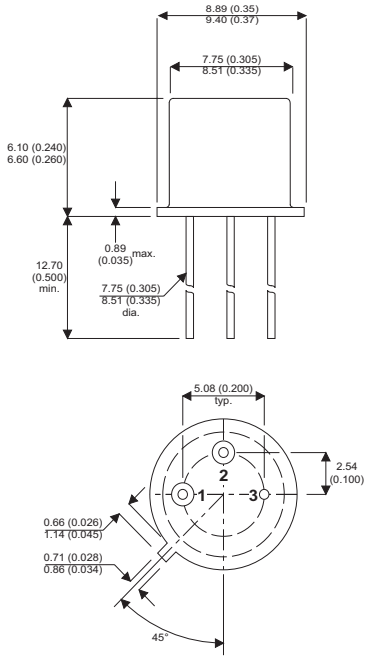
2N5786

MECHANICAL DATA

Dimensions in mm (inches)



TO39 PACKAGE

PIN 1 – Emitter PIN 2 – Base PIN 3 – Collector

SILICON EPITAXIAL NPN TRANSISTOR

FEATURES

General purpose power transistor for switching and linear applications in a hermetic TO–39 package.

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise stated)

V_{CBO}	Collector – Base Voltage		45V
$V_{CER(sus)}$	Collector – Emitter Sustaining Voltage	R_{BE} = 100Ω	45V
$V_{CEO(sus)}$	Collector – Emitter Sustaining Voltage		40V
V_{EBO}	Emitter – Base Voltage		3.5V
I_C	Continuous Collector Current		3.5A
I_B	Continuous Collector Current		1A
P_D	Total Device Dissipation	T_A = 25°C	10W
		Derate above 25°C	0.057W/°C
P_D	Total Device Dissipation	T_C = 25°C	1W
		Derate above 25°C	0.0057W/°C
T_J , T_{STG}	Operating Junction and Storage Temperature Range		–65 to +200°C
T_L	Lead temperature, ≥ $^1/_{32}$" (0.8mm) from seating plane for 10 s max.		230°C

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SEME LAB

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ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise stated)

	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I_{CER}	Collector Cut-off Current	V_{CE} = 40V				10	µA
		R_{BE} = 100Ω	T_C = 150°C			1	mA
I_{CEX}	Collector Cut-off Current	V_{CE} = 45V	V_{BE} = -1.5V			10	µA
		R_{BE} = 100Ω	T_C = 150°C			1	mA
I_{CEO}	Collector Cut-off Current	V_{CE} = 25V	I_B = 0			100	µA
I_{EBO}	Emitter Cut-off Current	V_{BE} = -3.5V	I_C = 0			10	µA
h_{FE*}	DC Current Gain	V_{CE} = 2V	I_C = 1.6A	20		100	—
		V_{CE} = 2V	I_C = 3.2A	4			
$V_{CEO(sus)*}$	Collector – Emitter Sustaining Voltage [1]	I_C = 0.1A	I_B = 0	40			V
$V_{CER(sus)*}$	Collector – Emitter Sustaining Voltage [1]	I_C = 0.1A	R_{BE} = 100Ω	45			
V_{BE}	Base – Emitter Voltage	V_{CE} = 2V	I_C = 1.6A			1.5	V
$V_{CE(sat)}$	Collector – Emitter Saturation Voltage [2]	I_C = 1.6A	I_B = 0.16mA			1	
		I_C = 3.2A	I_B = 0.8mA			2	
$\lvert h_{fe} \rvert$	Small Signal Common – Emitter Current Gain	V_{CE} = -2V f = 200kHz	I_C = 100mA	5		20	—
h_{fe}	Small Signal Common – Emitter Current Gain	V_{CE} = 2V f = 1kHz	I_C = 0.1mA	25			—
t_{ON}	Turn-on Time	V_{CC} = 30V	I_C = 1A			5	µs
t_{OFF}	Turn-off Time	I_{B1} = I_{B2}				15	
$R_{\theta JC}$	Thermal Resistance Junction – Case					17.5	°C/W
$R_{\theta JA}$	Thermal Resistance Junction – Ambient					175	

NOTES

* Pulse Test: t_p = 300µs, δ = 1.8%.

1) These tests *MUST NOT* be measured on a curve tracer.
2) Measured ¼" (6.35 mm) from case. Lead resistance is critical in this test.
3) Measured at a frequency where $\lvert h_{fe} \rvert$ is decreasing at approximately 6dB per octave.

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