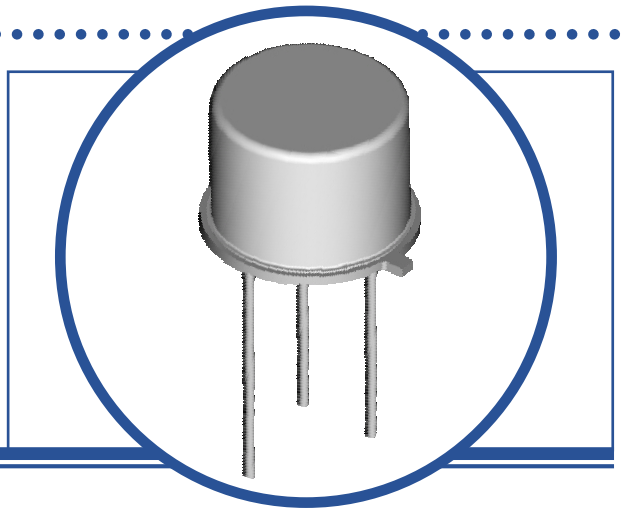
SILICON
NPN TRANSISTOR

TT electronics
Semelab Limited

2N5786



- Low Saturation Voltage. High Gain At High Current.
- Hermetic TO39 (TO-205AD) Metal Package.
- Ideally suited for General Purpose Amplifier Applications.
- High Reliability and Space Screening Options Available.

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

V_{CBO}	Collector – Base Voltage		45V
V_{CER}	Collector – Emitter Voltage	R_{BE} = 100Ω	45V
V_{CEO}	Collector – Emitter Voltage		40V
V_{EBO}	Emitter – Base Voltage		3.5V
I_C	Continuous Collector Current		3.5A
I_B	Base Current		1.0A
P_D	Total Power Dissipation at	T_A = 25°C	1.0W
		Derate Above 25°C	5.71mW/°C
P_D	Total Power Dissipation at	T_C = 25	10W
		Derate Above 25°C	57.14mW/°C
T_J	Junction Temperature Range		-65 to +200°C
T_{stg}	Storage Temperature Range		-65 to +200°C

THERMAL PROPERTIES

Symbols	Parameters	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction To Case	17.5	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction To Ambient	175	°C/W

SEMELAB
A subsidiary of TT electronics plc.

Semelab Limited Coventry Road, Lutterworth, Leicestershire, LE17 4JB
Telephone +44 (0) 1455 556565 Fax +44 (0) 1455 552612 Email: sales@semelab-tt.com Website: http://www.semelab-tt.com

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

Symbols	Parameters	Test Conditions		Min.	Typ	Max.	Units
$V_{(BR)CEO}$ (1)	Collector-Emitter Breakdown Voltage	I_C = 100mA	I_B = 0	40			V
$V_{(BR)CER}$ (1)	Collector-Emitter Breakdown Voltage	I_C = 100mA	R_{BE} = 100Ω	45			
I_{CER}	Collector Cut-Off Current	V_{CE} = 40V	R_{BE} = 100Ω			10	µA
			T_C = 150°C			1.0	mA
I_{CEX}	Collector Cut-Off Current	V_{CE} = 45V	V_{BE} = -1.5V			10	µA
			T_C = 150°C			1.0	mA
I_{CEO}	Collector Cut-Off Current	V_{CE} = 25V	I_B = 0			100	µA
I_{EBO}	Emitter Cut-Off Current	V_{EB} = 3.5V	I_C = 0			10	
h_{FE} (1)	Forward-current transfer ratio	I_C = 1.6A	V_{CE} = 2V	20		100	
		I_C = 3.2A		4			
V_{BE} (1)	Base-Emitter Voltage	I_C = 1.6A	V_{CE} = 2V			1.5	V
$V_{CE(sat)}$ (1)	Collector-Emitter Saturation Voltage	I_C = 1.6A	I_B = 0.16A			1.0	
		I_C = 3.2A	I_B = 0.8A			2	

DYNAMIC CHARACTERISTICS

$\lvert h_{fe} \rvert$	Magnitude of common-emitter, small-signal short-circuit, forward-current transfer ratio	I_C = 100mA f = 4MHz	V_{CE} = 2V	5		20	
h_{fe}	Small-Signal Current Gain	I_C = 100mA f = 1.0 KHz	V_{CE} = 2V	25			-
t_{on}	Turn-On Time	I_C = 1.0A I_{B1} = 0.1A	V_{CC} = 30V			5	µS
t_{off}	Turn-Off Time	I_C = 1.0A I_{B1} = - I_{B2} = 0.1A	V_{CC} = 30V			15	

Notes

(1) Pulse Width ≤ 380us, δ ≤ 2%

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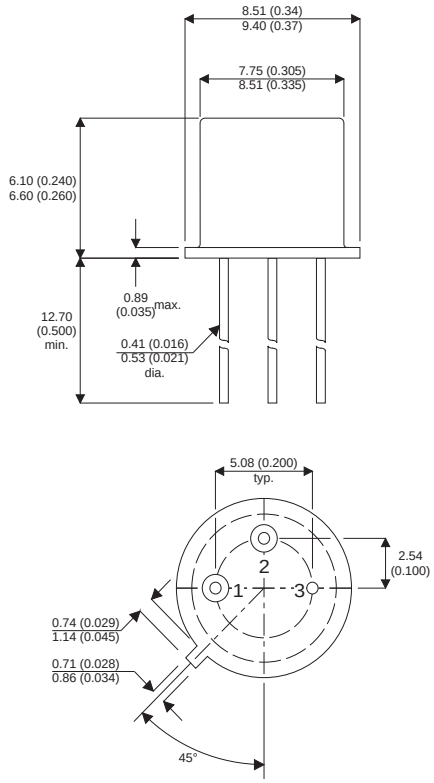
MECHANICAL DATA
Dimensions in mm (inches)



TO-39 (TO-205AD) METAL PACKAGE
Underside View

Pin 1 - Emitter Pin 2 - Base Pin 3 - Collector