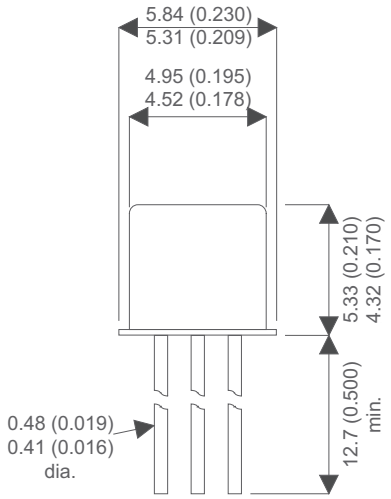
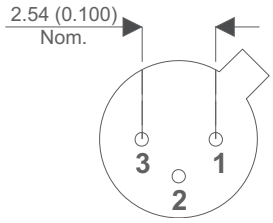
2N2369A

MECHANICAL DATA

Dimensions in mm (inches)





TO-18 (TO-206AA)

Underside View

PAD 1 – Base PAD 2 – Emitter PAD 3 – Collector

HIGH SPEED, MEDIUM POWER, NPN SWITCHING TRANSISTOR IN A HERMETICALLY SEALED TO-18 PACKAGE FOR HIGH RELIABILITY APPLICATIONS

FEATURES

- **SILICON PLANAR EPITAXIAL NPN TRANSISTOR**
- **HERMETIC TO18 PACKAGE**
- **CECC SCREENING OPTIONS**

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

V_{CBO}	Collector – Base Voltage		40V
V_{CEO}	Collector – Emitter Voltage		15V
V_{EBO}	Emitter – Base Voltage		4.5V
I_C	Collector Current		200mA
P_D	Total Device Dissipation	@ T_A =25°C	360mW
		Derate above 25°C	2.06mW / °C
P_D	Total Device Dissipation	@ T_C =25°C	680mW
		Derate above 25°C	6.85mW / °C
T_{STG} , T_J	Operating and Storage Temperature Range		–65 to +200°C
$R\theta_{JC}$	Thermal Resistance Junction-Case		146°C/W
$R\theta_{JA}$	Thermal Resistance Junction-Ambient		486°C/W

Semelab plc. Telephone +44(0)1455 556565. Fax +44(0)1455 552612.
E-mail: sales@semelab.co.uk Website: http://www.semelab.co.uk

Document Number 5277
Issue 1

2N2369A

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

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
$V_{(BR)CEO}$*	Collector – Emitter Breakdown Voltage	I_C = 10mA		15			V
$V_{(BR)CBO}$	Collector – Base Breakdown Voltage	I_C = 10µA		40			V
$V_{(BR)EBO}$	Emitter – Base Breakdown Voltage	I_E = 10µA		4.5			V
I_{CES}	Collector – Emitter Cut-off Current	V_{CE} = 20V				0.40	µA
I_{CBO}	Collector – Base Cut-off Current	V_{CB} = 20V	T_A = +150°C			30	µA
$V_{CE(sat)}$*	Collector – Emitter Saturation Voltage	I_C = 10mA	I_B = 1mA			0.20	V
			T_A = +125°C			0.30	
		I_C = 30mA	I_B = 3mA			0.25	
		I_C = 100mA	I_B = 10mA			0.5	
$V_{BE(sat)}$*	Base – Emitter Saturation Voltage	I_C = 10mA	I_B = 1mA	0.70	0.8	0.85	V
		I_C = 30mA	I_B = 3mA		0.9	1.15	
		I_C = 100mA	I_B = 10mA		1.1	1.6	
		I_C = 10mA	I_B = 1mA	0.59		1.02	
			T_A = -55°C to +125°C				
h_{FE}*	DC Current Gain	I_C = 10mA	V_{CE} = 0.35V	40		120	—
		I_C = 10mA	V_{CE} = 1V	40		120	
		I_C = 30mA	V_{CE} = 0.40V	30	71		
		I_C = 100mA	V_{CE} = 1V	20			
		I_C = 10mA	V_{CE} = 0.35V	20	50		
			T_A = –55°C				
f_T	Transition Frequency	I_C = 10mA	V_{CE} = 10V	500	675		MHz
		f = 100MHz					
C_{cbo}	Output Capacitance	I_E = 0	V_{CB} = 5V		2.3	4	pF
		f = 1MHz					
t_s	Storage Time	I_C = 10mA	V_{CC} = 10V		6	13	ns
		I_{B1} = –I_{B2} = 10mA					
t_{on}	Turn–On Time	I_C = 10mA	V_{CC} = 3V		9	12	ns
t_{off}	Turn–Off Time	I_{B1} = 3mA	I_{B2} = –1.5mA		13	18	

* Pulse Test: $t_p \leq 300\mu s$, $\delta \leq 2\%$.

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