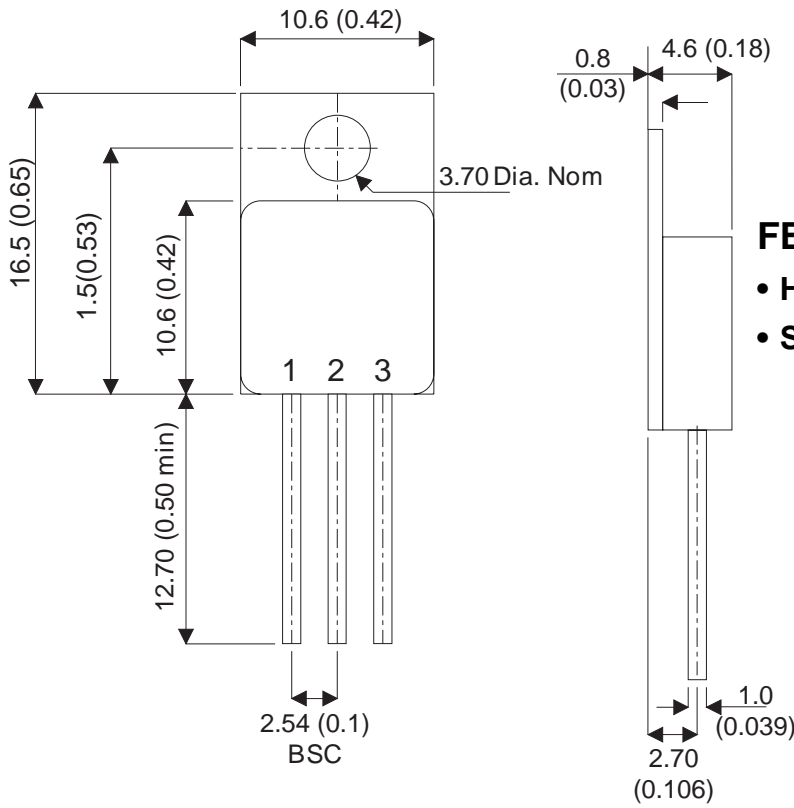


**MECHANICAL DATA**  
Dimensions in mm



**TO220M (TO-257AB)- Isolated Metal Package**

**Pin 1 – Base Pin 2 – Collector Pin 3 – Emitter**

**NPN AND PNP  
SILICON PLANAR  
EPITAXIAL  
TRANSISTORS**

**FEATURES**

- Hermetic TO220 Isolated Metal Package
- Screening Options Available

**APPLICATIONS:**

All Semelab hermetically sealed products can be processed in accordance with the requirements of BS, CECC and JAN, JANTX, JANTXV and JANS specifications

<b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_{case} = 25^{\circ}C$ unless otherwise stated)			<b>BUX77A NPN</b>	<b>BUX78A PNP</b>
$V_{CBO}$	Collector – Base Voltage	( $I_E = 0$ )	100V	-100V
$V_{CEO(sus)}$	Collector – Emitter Voltage	( $I_B = 0$ )	80V	-80V
$V_{EBO}$	Emitter – Base Voltage	( $I_C = 0$ )	6V	-6V
$I_C$	Collector Current		8A	
$I_B$	Base Current		2A	
$P_{tot}$	Total Power Dissipation at $T_{case} \leq 25^{\circ}C$		50W	
$T_{stg}$	Storage Temperature Range		-65 to 200°C	
$T_j$	Operating Junction Temperature Range		-55 to 175°C	

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

**ELECTRICAL CHARACTERISTICS** ( $T_{case} = 25^{\circ}C$  unless otherwise stated)

Parameter		Test Conditions	Min.	Typ.	Max.	Unit
$I_{CEO}$	Collector Cut-off Current ( $I_B = 0$ )	$V_{CE} = 60V$			10	$\mu A$
$I_{CBO}$	Collector Cut-off Current ( $I_E = 0$ )	$V_{CE} = 80V$			0.5	$\mu A$
		$V_{CE} = 80V$ $T_{case} = 150^{\circ}C$			150	
$I_{EBO}$	Emitter Cut-off Current ( $I_C = 0$ )	$V_{EB} = 4V$			0.5	$\mu A$
$V_{CEO(sus)*}$	Collector – Emitter Sustaining Voltage ( $I_B = 0$ )	$I_C = 50mA$	80			V
$V_{CES}$	Collector – Emitter Voltage ( $V_{BE} = 0$ )	$I_C = 2mA$	100			V
$V_{CE(sat)*}$	Collector – Emitter Saturation Voltage	$I_C = 5A$ $I_B = 0.5A$			1	V
$V_{EBO}$	Base – Emitter Voltage ( $I_C = 0$ )	$I_E = 1mA$	6			V
$V_{BE(sat)*}$	Base – Emitter Saturation Voltage	$I_C = 5A$ $I_B = 0.5A$			1.3	V
$h_{FE*}$	DC Current Gain	$I_C = 0.5A$ $V_{CE} = 5V$	70			—
		$I_C = 2A$ $V_{CE} = 5V$	50		250	
		$I_C = 5A$ $V_{CE} = 5V$	30			
		$I_C = 1A$ $V_{CE} = 5V$ $T_{case} = -40^{\circ}C$	25			
$h_{fe}$	Small Signal Current Gain	$I_C = 0.5A$ $V_{CE} = 5V$ $f = 20MHz$	1.5			—
$t_r$	Rise Time	$I_C = 5A$ $V_{CC} = 40V$ $I_{B1} = -I_{B2} = 0.5A$			0.2	$\mu s$
$t_s$	Storage Time				2.0	
$t_f$	Fall Time				0.2	
$t_{on}$	Turn-on Time				0.4	
$t_{off}$	Turn-off Time				2.5	

**NOTE:** For PNP device, Voltage and Current values are negative.

\*Pulsed : Pulse duration = 300  $\mu s$  , duty cycle = 1.5%

**THERMAL DATA**

$R_{THj-case}$ Thermal Resistance Junction – Case	2.5°C/W Max.
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