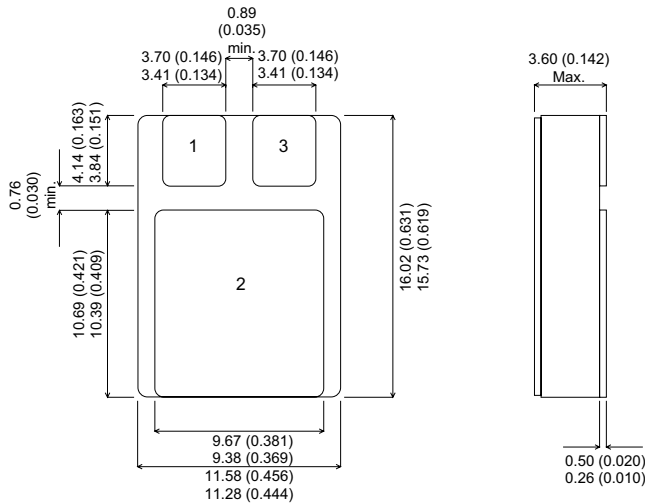
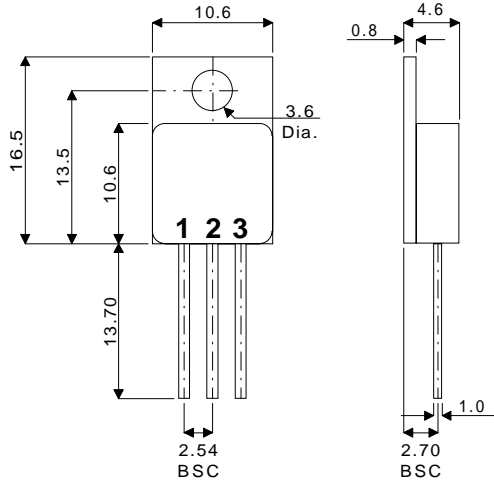


**MECHANICAL DATA**  
Dimensions in mm

**SILICON NPN  
EPITAXIAL BASE  
IN TO220 METAL AND  
SMD1 CERAMIC SURFACE  
MOUNT PACKAGES**



**FEATURES**

- HERMETIC METAL OR CERAMIC PACKAGES
- HIGH RELIABILITY
- MILITARY AND SPACE OPTIONS
- SCREENING TO CECC LEVELS
- FULLY ISOLATED (METAL VERSION)

**APPLICATIONS**

- POWER LINEAR AND SWITCHING APPLICATIONS
- GENERAL PURPOSE POWER

**TO220M** - TO220 Metal Package - Isolated  
**SMD1** - Ceramic Surface Mount Package

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

**ABSOLUTE MAXIMUM RATINGS** ( $T_{case}=25^{\circ}C$  unless otherwise stated)

		<b>BDS16</b>	<b>BDS17</b>
$V_{CBO}$	Collector - Base voltage ( $I_E = 0$ )	120V	150V
$V_{CEO}$	Collector - Emitter voltage ( $I_B = 0$ )	120V	150V
$V_{EBO}$	Emitter - Base voltage ( $I_C = 0$ )		5V
$I_E, I_C$	Emitter, Collector current		8A
$I_B$	Base current		2A
$P_{tot}$	Total power dissipation at $T_{case} \leq 75^{\circ}C$		50W
$T_{stg}$	Storage Temperature		-65 TO 200°C
$T_j$	Junction Temperature		200°C

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector cut-off current ( $I_E = 0$ )	<b>BDS16</b> <b>BDS17</b>	$V_{CB} = 120V$ $V_{CB} = 150V$		20 20 $\mu A$
$I_{CEO}$	Collector cut-off current ( $I_B = 0$ )	<b>BDS16</b> <b>BDS17</b>	$V_{CE} = 60V$ $V_{CE} = 75V$		0.1 0.1 mA
$I_{EBO}$	Emitter cut-off current ( $I_C = 0$ )		$V_{EB} = 5V$		10 $\mu A$
$V_{CEO(sus)^*}$	Collector - Emitter sustaining voltage ( $I_B = 0$ )	<b>BDS16</b> <b>BDS17</b>	$I_C = 100mA$	120 150	V
$V_{CE(sat)^*}$	Collector - Emitter saturation voltage	$I_C = 1A$	$I_B = 0.1A$		0.5 V
$V_{BE(on)^*}$	Base - Emitter voltage	$I_C = 1A$	$V_{CE} = 2V$		1.0 V
$h_{FE}^*$	DC Current gain	$I_C = 0.5A$ $I_C = 4A$	$V_{CE} = 2V$ $V_{CE} = 2V$	40 15	250 150
$f_T$	Transition frequency	$I_C = 0.5A$	$V_{CE} = 10V$	30	MHz

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

**SWITCHING CHARACTERISTICS**

Parameter	Test Conditions	Max.	Unit
$t_{on}$	On Time ( $t_d + t_r$ )	0.5	$\mu s$
$t_s$	Storage Time	3.0	$\mu s$
$t_f$	Fall Time	0.4	$\mu s$

**THERMAL DATA**

$R_{THj-case}$	Thermal resistance junction - case	Max. 2.5 $^{\circ}C/W$
$R_{THj-a}$	Thermal resistance junction - ambient	Max. 62.5 $^{\circ}C/W$