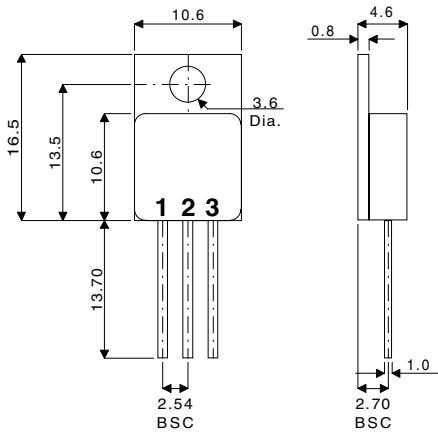


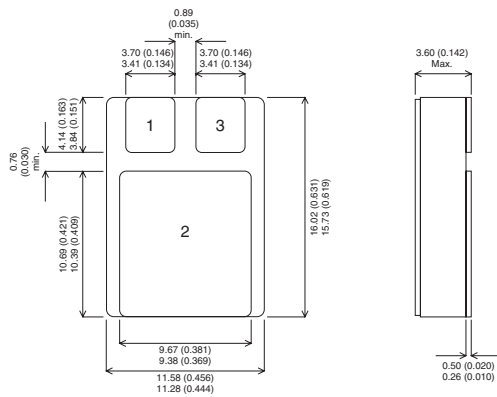
**SILICON PNP EPITAXIAL
 BASE IN TO220 METAL AND
 CERAMIC SURFACE
 MOUNT PACKAGES**

MECHANICAL DATA

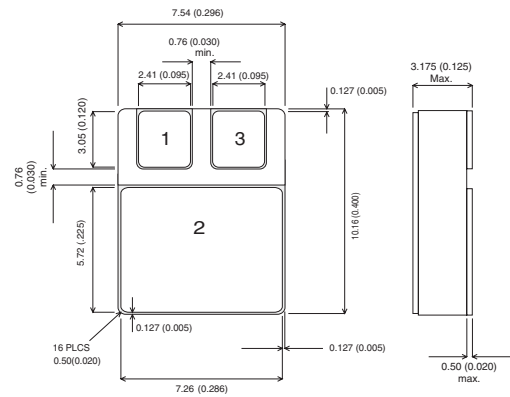
Dimensions in mm(inches)



TO220M - TO220 Metal Package - Isolated (TO-257AB)



SMD1 - Ceramic Surface Mount Package (TO-276AB)



SMD05 - Ceramic Surface Mount Package (TO-276AA)

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

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

		BDS13	BDS14	BDS15
V_{CBO}	Collector - Base voltage ($I_E = 0$)	- 60V	- 80V	- 100V
V_{CEO}	Collector - Emitter voltage ($I_B = 0$)	- 60V	- 80V	- 100V
V_{EBO}	Emitter - Base voltage ($I_C = 0$)		- 5V	
I_E, I_C	Emitter, Collector current		- 15A	
I_B	Base current		- 5A	
P_{tot}	Total power dissipation at $T_{case} = 25^{\circ}C$		43.75W	
T_{stg}	Storage Temperature		-65 to 200°C	
T_j	Junction Temperature		200°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_{CBO} Collector cut-off current ($I_E = 0$)	BDS13 $V_{CB} = -60V$			- 500	μA
	BDS14 $V_{CB} = -80V$			- 500	
	BDS15 $V_{CB} = -100V$			- 500	
I_{CEO} Collector cut-off current ($I_B = 0$)	BDS13 $V_{CE} = -30V$			- 1.0	mA
	BDS14 $V_{CE} = -40V$			- 1.0	
	BDS15 $V_{CE} = -50V$			- 1.0	
I_{EBO} Emitter cut-off current ($I_C = 0$)	$V_{EB} = -5V$			- 1.0	mA
$V_{CEO(sus)^*}$ Collector - Emitter sustaining voltage ($I_B = 0$)	BDS13	- 60			V
	BDS14 $I_C = -100mA$	- 80			
	BDS15	- 100			
$V_{CE(sat)^*}$ Collector - Emitter saturation voltage	$I_C = -5A$ $I_B = -0.5A$			- 1.0	V
	$I_C = -10A$ $I_B = -2.5A$			- 3	
$V_{BE(sat)^*}$ Base - Emitter saturation voltage	$I_C = -10A$ $I_B = -2.5A$			- 2.5	V
V_{BE}^* Base - Emitter voltage	$I_C = -5A$ $V_{CE} = -4V$			- 1.5	V
h_{FE}^* DC Current Gain	$I_C = -0.5A$ $V_{CE} = -4V$	40		300	
	$I_C = -5A$ $V_{CE} = -4V$	15		150	
	$I_C = -10A$ $V_{CE} = -4V$	5			
f_T Transition frequency	$I_C = -0.5A$ $V_{CE} = -4V$ $f = 1MHz$	3			MHz

*Pulsed : Pulse duration = 300 μs , duty cycle = 1.5%

SWITCHING CHARACTERISTICS

Parameter	Test Conditions	Max.	Unit
t_{on} On Time ($t_d + t_r$)	$I_C = -4A$ $V_{CC} = -30V$ $I_{B1} = -0.4A$	0.7	μs
t_s Storage Time	$I_C = -4A$ $V_{CC} = -30V$	1.0	μs
t_r Fall Time	$I_{B1} = -I_{B2} = 0.4A$	0.8	μs

THERMAL CHARACTERISTICS

Parameter	Test Conditions	Max.	Unit
$R_{\theta J-C}$ Thermal Resistance Junction to Case		4.0	$^{\circ}C/W$

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