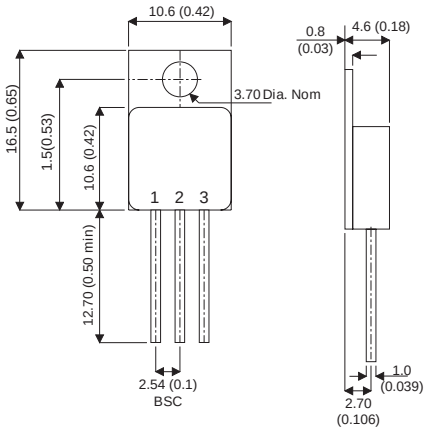
BDS10 BDS10SMD BDS10SMD05
BDS11 BDS11SMD BDS11SMD05
BDS12 BDS12SMD BDS12SMD05

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

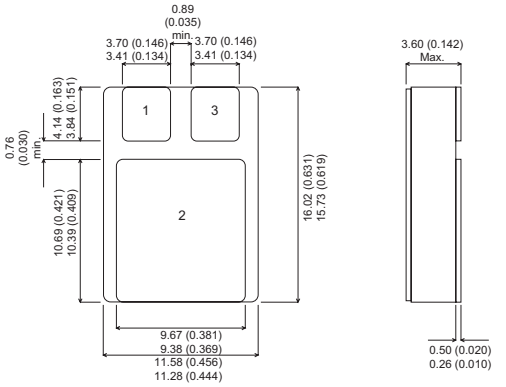
MECHANICAL DATA
Dimensions in mm(inches)



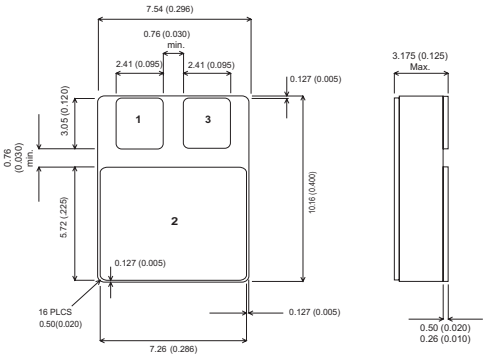
TO220M - TO220 Metal Package - Isolated (TO-257AB)

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**



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°C unless otherwise stated)		BDS10	BDS11	BDS12
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 $T_{case} \leq 25°C$		90W	
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.

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BDS10 BDS10SMD BDS10SMD05
BDS11 BDS11SMD BDS11SMD05
BDS12 BDS12SMD BDS12SMD05

ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise stated)

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
I_{CBO}	Collector cut-off current (I_E = 0)	**BDS10**	V_{CB} = 60V			500	µA
		BDS11	V_{CB} = 80V			500	
		BDS12	V_{CB} = 100V			500	
I_{CEO}	Collector cut-off current (I_B = 0)	**BDS10**	V_{CE} = 30V			1	mA
		BDS11	V_{CE} = 40V			1	
		BDS12	V_{CE} = 50V			1	
I_{EBO}	Emitter cut-off current (I_C = 0)	V_{EB} = 5V				1	mA
$V_{CEO(sus)}$*	Collector - Emitter sustaining voltage (I_B = 0)	**BDS10**	I_C = 100mA	60			V
		BDS11		80			
		BDS12		100			
$V_{CE(sat)}$*	Collector - Emitter saturation voltage	I_C = 5A	I_B = 0.5A			1	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		250	
		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

		Test Conditions	Max.	Unit
$R_{\theta J\text{-}C}$	Thermal Resistance Junction to Case		1.4	°C/W

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