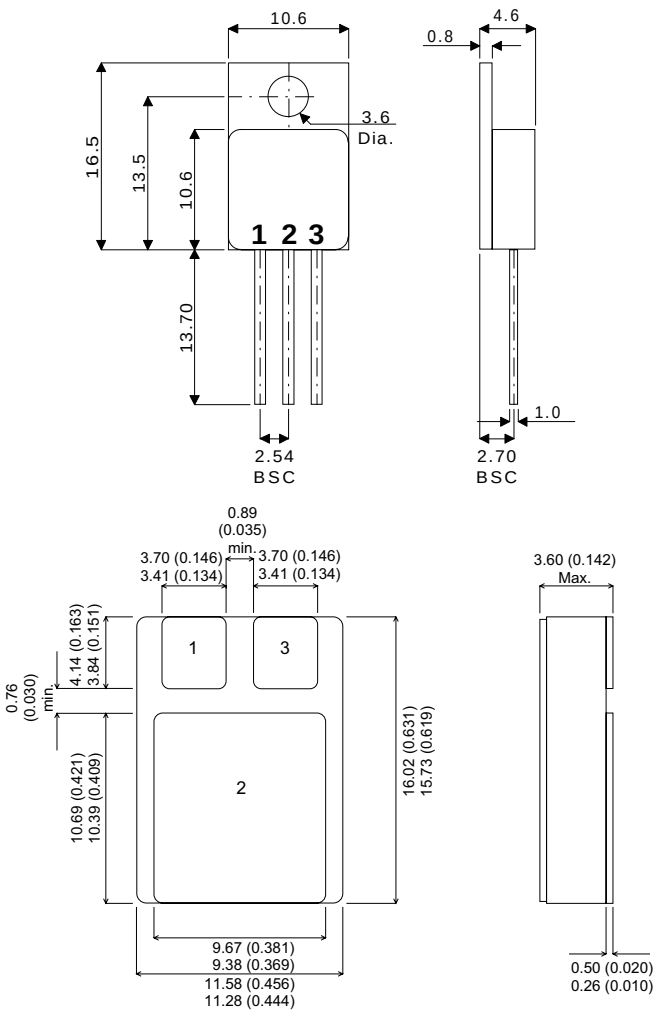
BDS10 BDS10SMD
BDS11 BDS11SMD
BDS12 BDS12SMD

MECHANICAL DATA
Dimensions in mm



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

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

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**

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 $T_{case} \leq 75°C$		90W	
T_{stg}	Storage Temperature		–65 to 200°C	
T_j	Junction Temperature		200°C	

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SEME LAB

BDS10 BDS10SMD
BDS11 BDS11SMD
BDS12 BDS12SMD

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**		60			V
		BDS11	I_C = 100mA	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	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 DATA

$R_{THj\text{-}case}$	Thermal resistance junction - case	Max. 1.4°C/W
$R_{THcase\text{-}sink}$	Thermal resistance case - heatsink **	Typ. 1.0°C/W
$R_{THj\text{-}a}$	Thermal resistance junction - ambient	Max. 80°C/W

** Smooth flat surface using thermal grease.

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