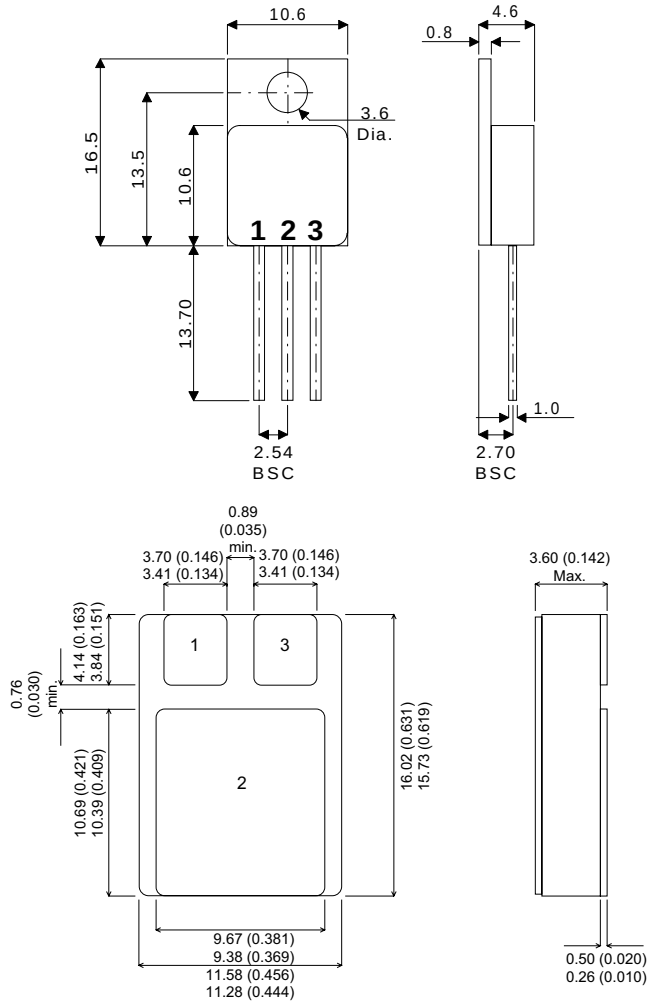
BDS13 BDS13SMD
BDS14 BDS14SMD
BDS15 BDS15SMD

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 PNP 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)

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

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PRELIM. 7/00

SEME LAB

BDS13 BDS13SMD
BDS14 BDS14SMD
BDS15 BDS15SMD

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)	**BDS13** V_{CB} = –60V **BDS14** V_{CB} = –80V **BDS15** V_{CB} = –100V			–500 –500 –500	µA
I_{CEO}	Collector cut-off current (I_B = 0)	**BDS13** V_{CE} = –30V **BDS14** V_{CE} = –40V **BDS15** V_{CE} = –50V			–1 –1 –1	mA
I_{EBO}	Emitter cut-off current (I_C = 0)	V_{EB} = –5V			–1	mA
$V_{CEO(sus)*}$	Collector - Emitter sustaining voltage (I_B = 0)	**BDS13** **BDS14** I_C = –100mA **BDS15**	–60 –80 –100			V
$V_{CE(sat)*}$	Collector - Emitter saturation voltage	I_C = –5A I_B = –0.5A I_C = –10A I_B = –2.5A			–1 –3	V
$V_{BE(sat)*}$	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 I_C = –5A V_{CE} = –4V I_C = –10A V_{CE} = –4V	40 15 5		250 150	
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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