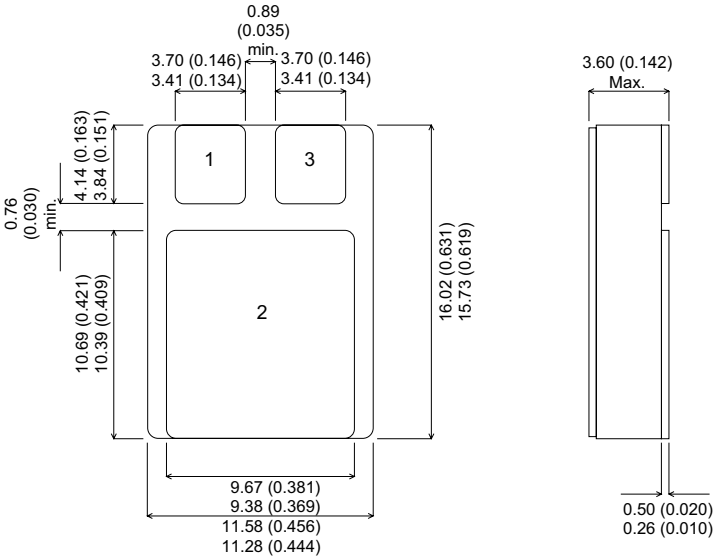
BUL58BSMD

ADVANCED
DISTRIBUTED BASE DESIGN
HIGH VOLTAGE
HIGH SPEED NPN
SILICON POWER TRANSISTOR

MECHANICAL DATA
Dimensions in mm



SMD1 PACKAGE

Pad 1 – Base Pad 2 – Collector Pad 3 – Emitter

- **SEMEFAB DESIGNED AND DIFFUSED**
- **HIGH VOLTAGE**
- **FAST SWITCHING**
- **HIGH ENERGY RATING**

FEATURES

- **Multi–base for efficient energy distribution across the chip resulting in significantly improved switching and energy ratings across full temperature range.**
- **Ion implant and high accuracy masking for tight control of characteristics from batch to batch.**
- **Triple Guard Rings for improved control of high voltages.**

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C unless otherwise stated)

V_{CBO}	Collector – Base Voltage	180V
V_{CEO}	Collector – Emitter Voltage (I_B = 0)	90V
V_{EBO}	Emitter – Base Voltage (I_C = 0)	10V
I_C	Collector Current	7A
$I_{C(PK)}$	Peak Collector Current	10A
I_B	Base Current	2A
P_{tot}	Total Dissipation at T_{case} = 25°C	50W
	Derate above 25°C when used on efficient heatsink	0.28W/°C
T_{stg}	Operating and Storage Temperature Range	–65 to 200°C

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

	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
	ELECTRICAL CHARACTERISTICS						
$V_{CEO(sus)}$	Collector – Emitter Sustaining Voltage	I_C = 10mA		90			V
$V_{(BR)CBO}$	Collector – Base Breakdown Voltage	I_C = 1mA		180			
$V_{(BR)EBO}$	Emitter – Base Breakdown Voltage	I_E = 1mA		10			
I_{CBO}	Collector Cut–Off Current	V_{CB} = 180V				10	µA
			T_C = 125°C			100	
I_{CEO}	Collector Cut–Off Current	I_B = 0	V_{CE} = 80V			100	µA
I_{EBO}	Emitter Cut–Off Current	I_C = 0				10	µA
		V_{EB} = 9V	T_C = 125°C			100	
h_{FE*}	DC Current Gain	I_C = 0.3A	V_{CE} = 4V	30		80	—
		I_C = 3A	V_{CE} = 4V	25		60	
		I_C = 5A	V_{CE} = 4V T_C = 125°C	20		50	
$V_{CE(sat)*}$	Collector – Emitter Saturation Voltage	I_C = 1A	I_B = 0.1A			0.2	V
		I_C = 3A	I_B = 0.3A			0.6	
		I_C = 6A	I_B = 0.6A			1.5	
$V_{BE(sat)*}$	Base – Emitter Saturation Voltage	I_C = 3A	I_B = 0.3A			1.1	V
		I_C = 6A	I_B = 0.5A			2.0	
	DYNAMIC CHARACTERISTICS						
f_t	Transition Frequency	I_C = 0.2A	V_{CE} = 4V		20		MHz
C_{ob}	Output Capacitance	V_{CB} = 20V	f = 1MHz		44		pF

* Pulse test t_p = 300µs , δ < 2%