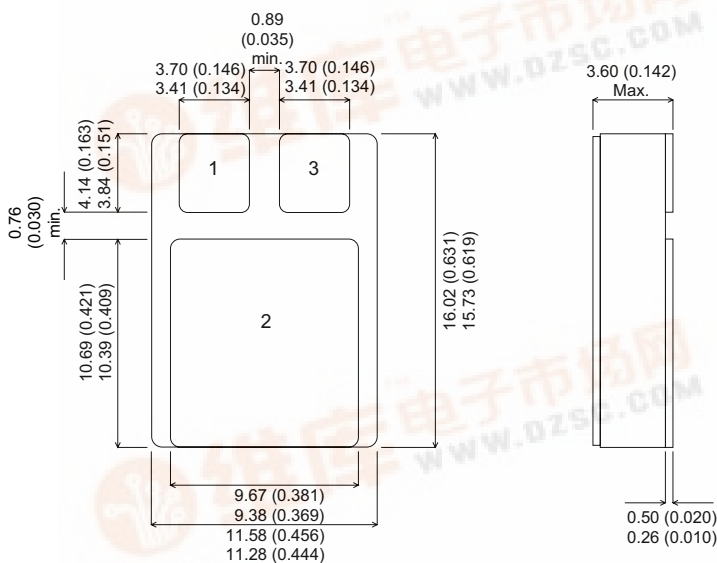


BUL56BSMD

MECHANICAL DATA

Dimensions in mm



SMD1

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

NPN
FAST SWITCHING
TRANSISTOR

FEATURES

- LOW SATURATION VOLTAGE
- ULTRA FAST TURN-ON AND TURN-OFF SWITCHING ($t_r / t_f = 40\text{ns}$)

APPLICATIONS

- High speed TO220 transistor suited for low voltage applications.
- High frequency and high efficiency converters, switching regulators and motor controls.
- Ideally suited for 12V and 24V inverters.

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

V_{CBO}	Collector – Base Voltage	200V
V_{CEO}	Collector – Emitter Voltage ($I_B = 0$)	100V
V_{EBO}	Emitter – Base Voltage ($I_C = 0$)	7V
I_C	Collector Current	14A
I_B	Base Current	4A
P_{tot}	Total Dissipation at $T_{\text{case}} = 25^\circ\text{C}$	85W
	Derate above 25°C when used on efficient heatsink	4.8W/ $^\circ\text{C}$
	Storage Temperature Range	-65 to 200°C
	Thermal Resistance Junction – Case	$175^\circ\text{C} / \text{W}$

ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
ELECTRICAL CHARACTERISTICS							
V _{CEO(sus)} *	Collector – Emitter Sustaining Voltage	I _C = 200mA		100			V
V _{(BR)EBO} *	Emitter – Base Breakdown Voltage	I _E = 1mA		7			
I _{CER} *	Collector Cut–Off Current	I _B = 0 R _{BE} = 50Ω	V _{CE} = 200V T _C = 125°C			3	mA
I _{CBO} *	Collector – Base Cut–Off Current	I _E = 0 V _{BE} = –1.5V	V _{CB} = 200V T _C = 125°C			1	mA
I _{EBO} *	Emitter Cut–Off Current	I _C = 0	V _{EB} = 5V			1	mA
V _{CE(sat)} *	Collector – Emitter Saturation Voltage	I _C = 5A	I _B = 500mA			0.6	V
		I _C = 10A	I _B = 1A			1.5	
V _{BE(sat)} *	Base – Emitter Saturation Voltage	I _C = 10A	I _B = 1A			2	V
SWITCHING CHARACTERISTICS (resistive load)							
t _{on}	Turn–On Time	V _{CC} = 50V	I _C = 12A		0.2	0.6	μS
t _s	Storage Time	V _{BE} = –6V	I _{B1} = 1.2A		0.4	1	
t _f	Fall Time	R _{BB} = 2.5Ω			0.04	0.25	
SWITCHING CHARACTERISTICS (inductive load)							
t _s	Storage Time	V _{CC} = 50V V _{BE} = –5V L _B = 0.5μH	I _C = 12A I _{B1} = 1.2A		0.5		μS
t _f	Fall Time				0.04		
t _s	Storage Time (T _j = 125°C)					2	
t _f	Fall Time (T _j = 125°C)					0.15	

* Pulse test $t_p = 300\mu s$, $\delta \leq 2\%$