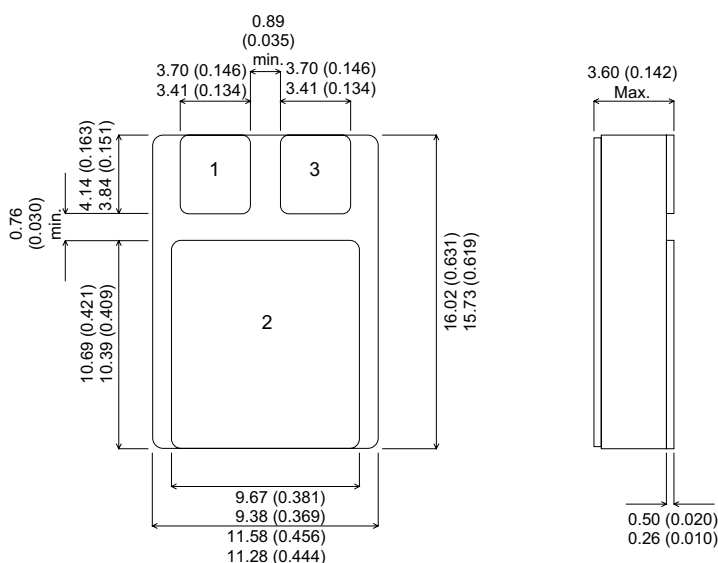


MECHANICAL DATA

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/ $^\circ\text{C}$
T_{stg}	Storage Temperature Range	-65 to 200°C
R_{th}	Thermal Resistance Junction – Case	$175^\circ\text{C} / \text{W}$

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 = 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 I _C = 12A		0.5		μS
t _f Fall Time	V _{BE} = –5V I _{B1} = 1.2A		0.04		
t _s Storage Time (T _J = 125°C)	L _B = 0.5μH			2	
t _f Fall Time (T _J = 125°C)				0.15	

* Pulse test t_p = 300μs , δ ≤ 2%