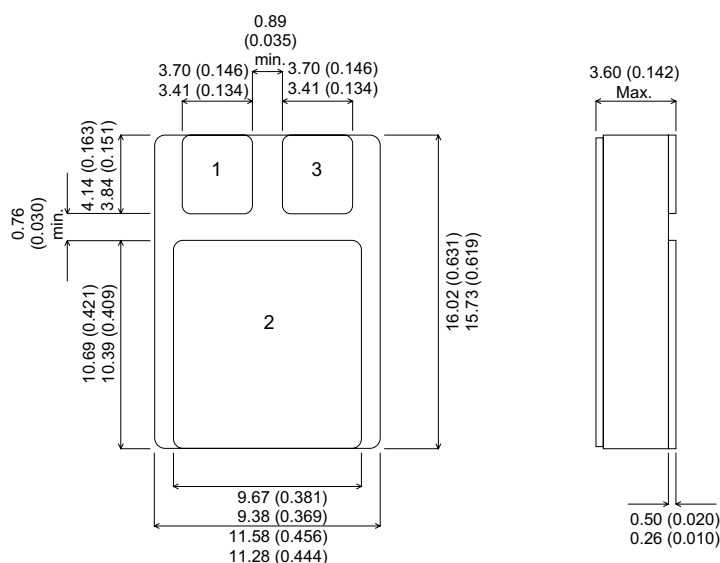


MECHANICAL DATA

Dimensions in mm



SMD1 PACKAGE

Pad 1 – Base

Pad 2 – Collector

Pad 3 – Emitter

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

- 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 ($T_{case} = 25^{\circ}C$ 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 $T_{case} = 25^\circ C$	50W
	Derate above $25^\circ C$ when used on efficient heatsink	0.28W/ $^\circ C$
T_{stg}	Operating and Storage Temperature Range	-65 to $200^\circ C$

ELECTRICAL CHARACTERISTICS ($T_{\text{case}} = 25^{\circ}\text{C}$ 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				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 $t_{\text{p}} = 300\mu\text{s}$, $\delta < 2\%$