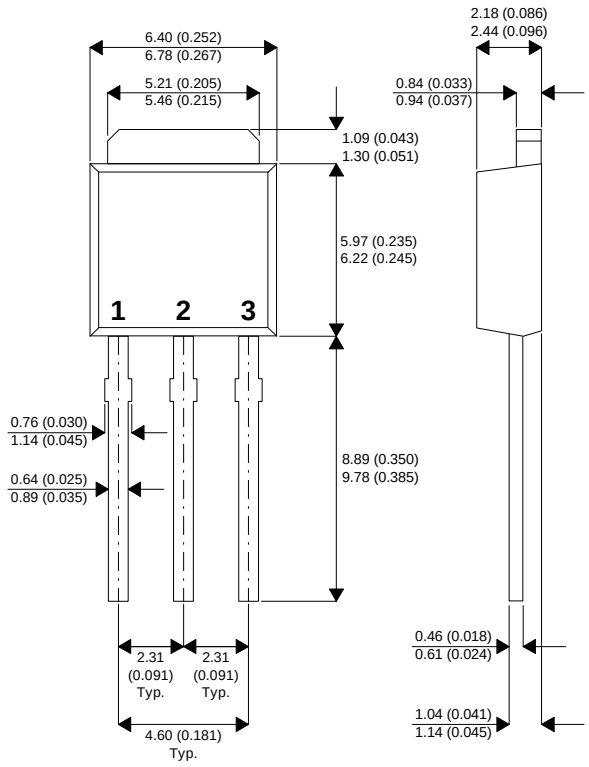
SEME LAB

BUL64A

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

Designed for use in electronic ballast applications

MECHANICAL DATA
Dimensions in mm (inches)



I–PAK (TO–251)

Pin 1 – Base Pin 2 – Collector Pin 3 – Emitter

- **SEMEFAB DESIGNED AND DIFFUSED DIE**
- **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	1000V
V_{CEO}	Collector – Emitter Voltage (I_B = 0)	500V
V_{EBO}	Emitter – Base Voltage (I_C = 0)	10V
I_C	Continuous Collector Current	4A
$I_{C(PK)}$	Peak Collector Current	7A
I_B	Base Current	2A
P_{tot}	Total Dissipation at T_{case} = 25°C	20W
T_{stg}	Operating and Storage Temperature Range	–55 to +150°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		500			V
$V_{(BR)CBO}$	Collector – Base Breakdown Voltage	I_C = 1mA		1000			V
$V_{(BR)EBO}$	Emitter – Base Breakdown Voltage	I_E = 1mA		10			V
I_{CBO}	Collector – Base Cut–Off Current	V_{CB} = 1000V				10	µA
			T_C = 125°C			100	µA
I_{CEO}	Collector – Emitter Cut–Off Current	I_B = 0	V_{CE} = 500V			100	µA
I_{EBO}	Emitter Cut–Off Current	V_{EB} = 9V				10	µA
		I_C = 0	T_C = 125°C			100	µA
h_{FE*}	DC Current Gain	I_C = 0.1A	V_{CE} = 5V	20	30		—
		I_C = 0.5A	V_{CE} = 5V	12	15		—
		I_C = 1A	V_{CE} = 1V	5	8		—
			T_C = 125°C				—
$V_{CE(sat)*}$	Collector – Emitter Saturation Voltage	I_C = 100mA	I_B = 20mA		0.05	0.1	V
		I_C = 0.5A	I_B = 0.1A		0.15	0.2	V
		I_C = 1A	I_B = 0.2A		0.3	0.5	V
$V_{BE(sat)*}$	Base – Emitter Saturation Voltage	I_C = 0.5A	I_B = 0.1A		0.8	1.0	V
		I_C = 1A	I_B = 0.2A		0.9	1.1	V
	DYNAMIC CHARACTERISTICS						
f_t	Transition Frequency	I_C = 0.2A	V_{CE} = 4V		20		MHz
C_{ob}	Output Capacitance	V_{CB} = 20V	f = 1MHz		20		pF

* Pulse test t_p = 300µs , δ < 2%