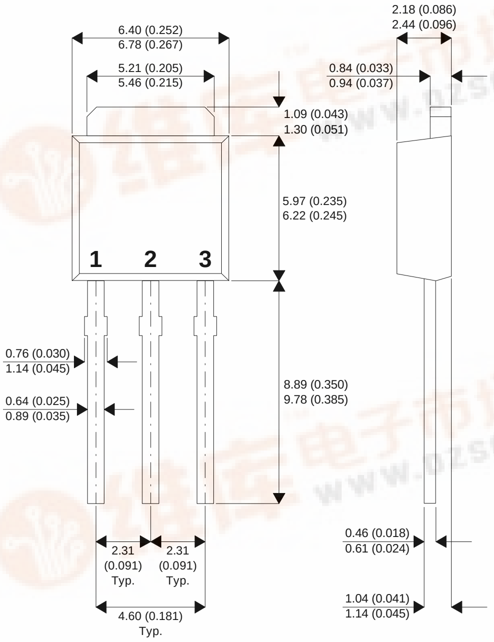
SEME
LAB

BUL65B

MECHANICAL DATA
Dimensions in mm



I-PAK (TO251)

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

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

**Designed for use in
electronic ballast applications**

- **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(I_E=0)	500V
V_{CEO}	Collector – Emitter Voltage (I_B = 0)	250V
V_{EBO}	Emitter – Base Voltage (I_C = 0)	10V
I_C	Continuous Collector Current	8A
$I_{C(PK)}$	Peak Collector Current	12A
I_B	Base Current	3A
P_{tot}	Total Dissipation at T_{case} = 25°C	20W
T_{stg}	Operating and Storage Temperature Range	–55 to +150°C

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		250			V
$V_{(BR)CBO}$	Collector – Base Breakdown Voltage	I_C = 1mA		500			
$V_{(BR)EBO}$	Emitter – Base Breakdown Voltage	I_E = 1mA		10			
I_{CBO}	Collector – Base Cut–Off Current	V_{CB} = 500V				10	μA
			T_C = 125°C			100	
I_{CEO}	Collector – Emitter Cut–Off Current	I_B = 0	V_{CE} = 240V			100	μA
I_{EBO}	Emitter Cut–Off Current	V_{EB} = 9V				10	μA
		I_C = 0	T_C = 125°C			100	
h_{FE*}	DC Current Gain	I_C = 0.1A	V_{CE} = 5V	20	30		—
		I_C = 1A	V_{CE} = 5V	25	50		
		I_C = 4A	V_{CE} = 1V	5	9		
			T_C = 125°C	4	8		
$V_{CE(sat)*}$	Collector – Emitter Saturation Voltage	I_C = 1A	I_B = 0.2A		.07	0.1	V
		I_C = 2A	I_B = 0.4A		0.2	0.5	
		I_C = 4A	I_B = 0.8A		0.4	0.8	
$V_{BE(sat)*}$	Base – Emitter Saturation Voltage	I_C = 2A	I_B = 0.4A		0.9	1.1	V
		I_C = 4A	I_B = 0.8A		1.1	1.2	
	DYNAMIC CHARACTERISTICS						
f_t	Transition Frequency	I_C = 0.2A	V_{CE} = 4V		20		MHz
C_{ob}	Output Capacitance	V_{CB} = 10V	f = 1MHz		25		pF

* Pulse test t_p = 300μs , $\delta < 2\%$