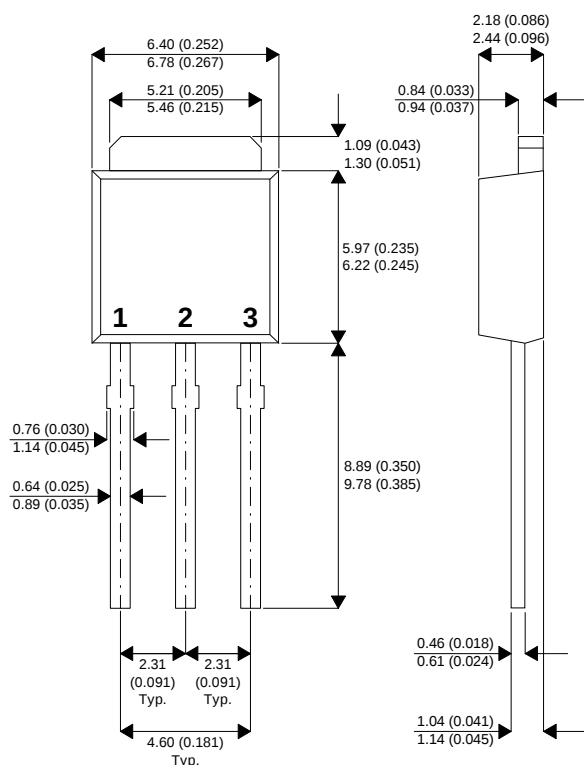


MECHANICAL DATA

Dimensions in mm (inches)



I-PAK (TO-251)

Pin 1 – Base

Pin 2 – Collector

Pin 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	800V
V_{CEO}	Collector – Emitter Voltage ($I_B = 0$)	400V
V_{EBO}	Emitter – Base Voltage ($I_C = 0$)	10V
I_C	Continuous Collector Current	5A
$I_{C(PK)}$	Peak Collector Current	8A
I_B	Base Current	2A
P_{tot}	Total Dissipation at $T_{case} = 25^\circ C$	20W
T_{stg}	Operating and Storage Temperature Range	-55 to $+150^\circ C$

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		400			V
V _{(BR)CBO}	Collector – Base Breakdown Voltage	I _C = 1mA		800			
V _{(BR)EBO}	Emitter – Base Breakdown Voltage	I _E = 1mA		10			
I _{CBO}	Collector – Base Cut–Off Current	V _{CB} = 800V T _C = 125°C				10 100	μA
I _{CEO}	Collector – Emitter Cut–Off Current	I _B = 0	V _{CE} = 400V			100	μA
I _{EBO}	Emitter Cut–Off Current	V _{EB} = 9V I _C = 0 T _C = 125°C				10 100	μA
h _{FE} *	DC Current Gain	I _C = 0.1A	V _{CE} = 5V	20	30		—
		I _C = 1A	V _{CE} = 5V	15		45	
		I _C = 2A	V _{CE} = 1V	5	10		
		T _C = 125°C					
V _{CE(sat)} *	Collector – Emitter Saturation Voltage	I _C = 100mA	I _B = 20mA		0.05	0.1	V
		I _C = 1A	I _B = 0.2A		0.1	0.3	
		I _C = 2A	I _B = 0.4A		0.3	0.4	
V _{BE(sat)} *	Base – Emitter Saturation Voltage	I _C = 1A	I _B = 0.2A		0.8	1.0	V
		I _C = 2A	I _B = 0.4A		0.9	1.1	
DYNAMIC CHARACTERISTICS							
f _t	Transition Frequency	I _C = 0.2A	V _{CE} = 4V		20		MHz
C _{ob}	Output Capacitance	V _{CB} = 20V	f = 1MHz		40		pF

* Pulse test $t_{\text{p}} = 300\mu\text{s}$, $\delta < 2\%$