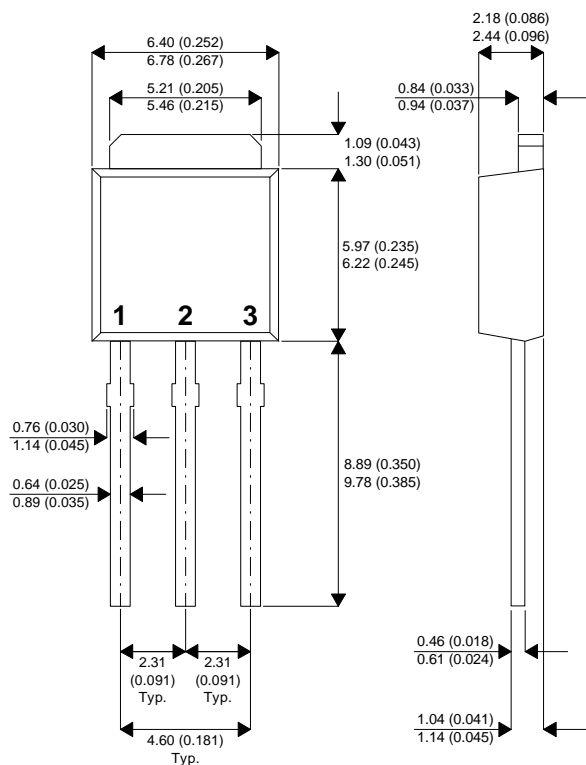


MECHANICAL DATA

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 ($T_{case} = 25^{\circ}C$ 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 $T_{case} = 25^{\circ}C$	20W
T_{stg}	Operating and Storage Temperature Range	-55 to +150°C

ELECTRICAL CHARACTERISTICS ($T_{\text{case}} = 25^{\circ}\text{C}$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit		
ELECTRICAL CHARACTERISTICS							
$V_{\text{CEO(sus)}}$	Collector – Emitter Sustaining Voltage	$I_{\text{C}} = 10\text{mA}$	500		V		
$V_{\text{(BR)CBO}}$	Collector – Base Breakdown Voltage	$I_{\text{C}} = 1\text{mA}$	1000				
$V_{\text{(BR)EBO}}$	Emitter – Base Breakdown Voltage	$I_{\text{E}} = 1\text{mA}$	10				
I_{CBO}	Collector – Base Cut-Off Current	$V_{\text{CB}} = 1000\text{V}$		10	μA		
			$T_{\text{C}} = 125^{\circ}\text{C}$	100			
I_{CEO}	Collector – Emitter Cut-Off Current	$I_{\text{B}} = 0$	$V_{\text{CE}} = 500\text{V}$	100	μA		
I_{EBO}	Emitter Cut-Off Current	$V_{\text{EB}} = 9\text{V}$	$I_{\text{C}} = 0$		10		
				$T_{\text{C}} = 125^{\circ}\text{C}$	100		
h_{FE}^*	DC Current Gain	$I_{\text{C}} = 0.1\text{A}$	$V_{\text{CE}} = 5\text{V}$	20	30	—	
		$I_{\text{C}} = 0.5\text{A}$	$V_{\text{CE}} = 5\text{V}$	12	15		
		$I_{\text{C}} = 1\text{A}$	$V_{\text{CE}} = 1\text{V}$	5	8		
$V_{\text{CE(sat)}}^*$	Collector – Emitter Saturation Voltage	$I_{\text{C}} = 100\text{mA}$	$I_{\text{B}} = 20\text{mA}$		0.05	0.1	V
		$I_{\text{C}} = 0.5\text{A}$	$I_{\text{B}} = 0.1\text{A}$		0.15	0.2	
		$I_{\text{C}} = 1\text{A}$	$I_{\text{B}} = 0.2\text{A}$		0.3	0.5	
$V_{\text{BE(sat)}}^*$	Base – Emitter Saturation Voltage	$I_{\text{C}} = 0.5\text{A}$	$I_{\text{B}} = 0.1\text{A}$		0.8	1.0	V
		$I_{\text{C}} = 1\text{A}$	$I_{\text{B}} = 0.2\text{A}$		0.9	1.1	
DYNAMIC CHARACTERISTICS							
f_{t}	Transition Frequency	$I_{\text{C}} = 0.2\text{A}$	$V_{\text{CE}} = 4\text{V}$		20	MHz	
C_{ob}	Output Capacitance	$V_{\text{CB}} = 20\text{V}$	$f = 1\text{MHz}$		20	pF	

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