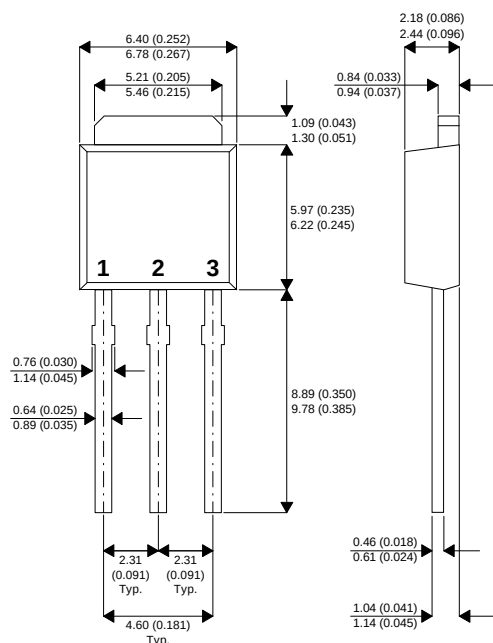


MECHANICAL DATA

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

V_{CBO}	Collector – Base Voltage ($I_E = 0$)	600V
V_{CEO}	Collector – Emitter Voltage ($I_B = 0$)	300V
V_{EBO}	Emitter – Base Voltage ($I_C = 0$)	10V
I_C	Continuous Collector Current	7A
$I_{C(PK)}$	Peak Collector Current	12A
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		300			V
V _{(BR)CBO}	Collector – Base Breakdown Voltage	I _C = 1mA		600			
V _{(BR)EBO}	Emitter – Base Breakdown Voltage	I _E = 1mA		10			
I _{CBO}	Collector – Base Cut–Off Current	V _{CB} = 600V				10	μA
		T _C = 125°C				100	
I _{CEO}	Collector – Emitter Cut–Off Current	I _B = 0	V _{CE} = 290V			100	μA
I _{EBO}	Emitter Cut–Off Current	V _{EB} = 9V				10	μA
		I _C = 0				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 = 1A	I _B = 0.2A		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		30		pF

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