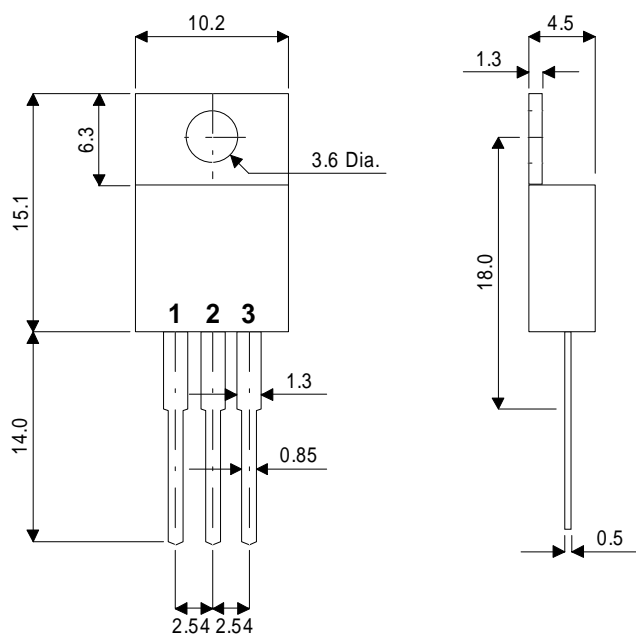


MECHANICAL DATA

Dimensions in mm



TO-220

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
- HIGH CURRENT
- EFFICIENT POWER SWITCHING

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 ($I_E=0$)	1000V
V_{CEO}	Collector – Emitter Voltage ($I_B = 0$)	500V
V_{EBO}	Emitter – Base Voltage ($I_C = 0$)	10V
I_C	Continuous Collector Current	11A
I_B	Base Current	3A
P_{tot}	Total Dissipation at $T_{case} = 25^{\circ}C$	100W
T_j	Junction Temperature	150°C
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	$V_{\text{CB}} = 1000\text{V}$ $T_{\text{C}} = 125^{\circ}\text{C}$		10	μA
				100	
I_{CEO}	Collector – Emitter Cut-Off Current	$V_{\text{CE}} = 490\text{V}$		100	μA
I_{EBO}	Emitter Cut-Off Current	$V_{\text{EB}} = 9\text{V}$ $T_{\text{C}} = 125^{\circ}\text{C}$		10	μA
				100	
h_{FE}^*	DC Current Gain	$I_{\text{C}} = 0.1\text{A}$ $V_{\text{CE}} = 1\text{V}$	15	40	—
		$I_{\text{C}} = 3\text{A}$ $V_{\text{CE}} = 1\text{V}$	5	20	
		$I_{\text{C}} = 0.5\text{A}$ $V_{\text{CE}} = 5\text{V}$	18	45	
		$I_{\text{C}} = 3\text{A}$ $V_{\text{CE}} = 5\text{V}$	8	20	
$V_{\text{CE(sat)}}^*$	Collector – Emitter Saturation Voltage	$I_{\text{C}} = 1\text{A}$ $I_{\text{B}} = 0.1\text{A}$		0.3	V
		$I_{\text{C}} = 2\text{A}$ $I_{\text{B}} = 0.4\text{A}$		0.5	
		$I_{\text{C}} = 5\text{A}$ $I_{\text{B}} = 1\text{A}$		1.0	
$V_{\text{BE(sat)}}^*$	Base – Emitter Saturation Voltage	$I_{\text{C}} = 3\text{A}$ $I_{\text{B}} = 0.3\text{A}$		1.2	V
		$I_{\text{C}} = 5\text{A}$ $I_{\text{B}} = 1\text{A}$		1.5	
DYNAMIC CHARACTERISTICS					
f_{t}	Transition Frequency	$I_{\text{C}} = 0.2\text{A}$ $V_{\text{CE}} = 4\text{V}$		16	MHz
C_{ob}	Output Capacitance	$V_{\text{CB}} = 10\text{V}$ $f = 1\text{MHz}$		85	pF

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