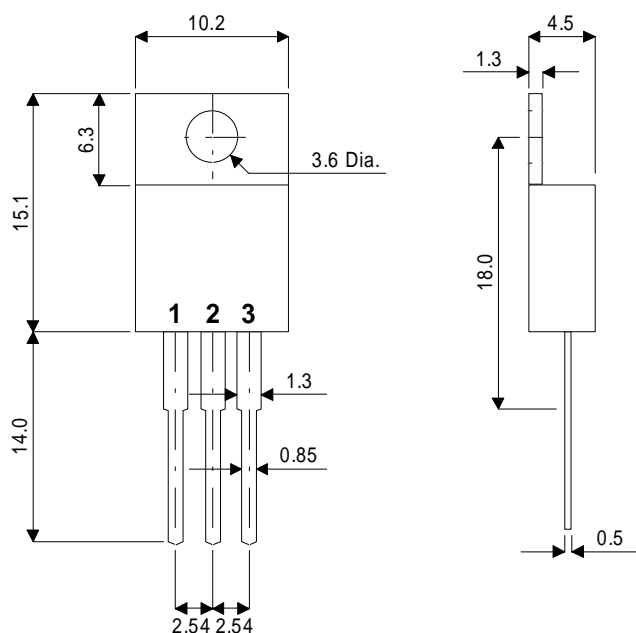


**MECHANICAL DATA**

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 ( $I_E=0$ )	350V
$V_{CEO}$	Collector – Emitter Voltage ( $I_B = 0$ )	160V
$V_{EBO}$	Emitter – Base Voltage ( $I_C = 0$ )	10V
$I_C$	Continuous Collector Current	60A
$I_B$	Base Current	12A
$P_{tot}$	Total Dissipation at $T_{case} = 25^{\circ}C$	85W
$T_j$	Junction Temperature	150°C
$T_{stg}$	Operating and Storage Temperature Range	-55 to +150°C

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit	
<b>ELECTRICAL CHARACTERISTICS</b>						
$V_{CEO(sus)}$	Collector – Emitter Sustaining Voltage	$I_C = 100mA$	160		V	
$V_{(BR)CBO}$	Collector – Base Breakdown Voltage	$I_C = 1mA$	350			
$V_{(BR)EBO}$	Emitter – Base Breakdown Voltage	$I_E = 1mA$	10			
$I_{CBO}$	Collector – Base Cut-Off Current	$V_{CB} = 340V$		10	$\mu A$	
			$T_C = 125^{\circ}C$			100
$I_{CEO}$	Collector – Emitter Cut-Off Current	$V_{CE} = 150V$		100	$\mu A$	
$I_{EBO}$	Emitter Cut-Off Current	$V_{EB} = 9V$		10	$\mu A$	
			$T_C = 125^{\circ}C$			100
$h_{FE}^*$	DC Current Gain	$I_C = 1A$	$V_{CE} = 1V$	35	90	—
		$I_C = 10A$	$V_{CE} = 1V$	15	60	
		$I_C = 1A$	$V_{CE} = 5V$	30	90	
		$I_C = 20A$	$V_{CE} = 5V$	15	70	
$V_{CE(sat)}^*$	Collector – Emitter Saturation Voltage	$I_C = 1A$	$I_B = 0.1A$		0.1	V
		$I_C = 20A$	$I_B = 2A$		1.1	
		$I_C = 20A$	$I_B = 4A$		0.7	
$V_{BE(sat)}^*$	Base – Emitter Saturation Voltage	$I_C = 10A$	$I_B = 1A$		1.2	V
		$I_C = 20A$	$I_B = 2A$		1.5	
<b>DYNAMIC CHARACTERISTICS</b>						
$f_t$	Transition Frequency	$I_C = 0.2A$	$V_{CE} = 4V$		21	MHz
$C_{ob}$	Output Capacitance	$V_{CB} = 10V$	$f = 1MHz$		157	pF

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