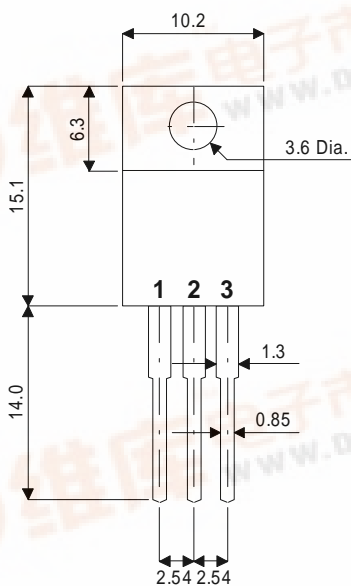




BUL54BFI

**MECHANICAL DATA**

Dimensions in mm



**ISOLATED TO220**

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
- MILITARY AND HI-REL VERSIONS AVAILABLE IN METAL AND CERAMIC SURFACE MOUNT PACKAGES

**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	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	3A
Total Dissipation at $T_{case} = 25^{\circ}C$		30W
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	$I_C = 10mA$	400				
$V_{(BR)CBO}$	Collector – Base Breakdown Voltage	$I_C = 1mA$	800		V		
$V_{(BR)EBO}$	Emitter – Base Breakdown Voltage	$I_E = 1mA$	10				
$I_{CBO}$	Collector – Base Cut-Off Current	$V_{CB} = 800V$			10		
			$T_C = 125^{\circ}C$		100	$\mu A$	
$I_{CEO}$	Collector – Emitter Cut-Off Current	$I_B = 0$	$V_{CE} = 400V$		100	$\mu A$	
$I_{EBO}$	Emitter Cut-Off Current	$V_{EB} = 9V$	$I_C = 0$		10		
				$T_C = 125^{\circ}C$		100	$\mu A$
$h_{FE}^*$	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		
$V_{CE(sat)}^*$	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	
<b>DYNAMIC CHARACTERISTICS</b>							
$f_t$	Transition Frequency	$I_C = 0.2A$	$V_{CE} = 4V$		20	MHz	
$C_{ob}$	Output Capacitance	$V_{CB} = 20V$	$f = 1MHz$		25	pF	

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