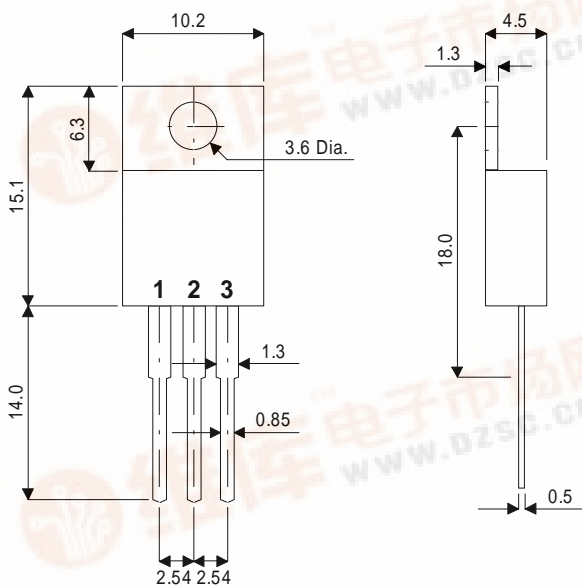




BUL53B

MECHANICAL DATA

Dimensions in mm



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

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 ($I_E = 0$)	500V
V_{CEO}	Collector – Emitter Voltage ($I_B = 0$)	250V
V_{EBO}	Emitter – Base Voltage ($I_C = 0$)	10V
I_C	Continuous Collector Current	12A
$I_{C(PK)}$	Peak Collector Current	24A
I_B	Base Current	4A
P_{tot}	Total Dissipation at $T_{case} = 25^{\circ}C$	90W
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		
ELECTRICAL CHARACTERISTICS							
$V_{CEO(sus)}$	Collector – Emitter Sustaining Voltage	$I_C = 10mA$	250				
$V_{(BR)CBO}$	Collector – Base Breakdown Voltage	$I_C = 1mA$	500		V		
$V_{(BR)EBO}$	Emitter – Base Breakdown Voltage	$I_E = 1mA$	10				
I_{CBO}	Collector – Base Cut-Off Current	$V_{CB} = 500V$			10		
			$T_C = 125^{\circ}C$		100	μA	
I_{CEO}	Collector – Emitter Cut-Off Current	$I_B = 0$	$V_{CE} = 240V$		100	μA	
I_{EBO}	Emitter Cut-Off Current	$V_{EB} = 9V$	$I_C = 0$		10		
				$T_C = 125^{\circ}C$		100	μA
h_{FE}^*	DC Current Gain	$I_C = 0.1A$	$V_{CE} = 5V$	20	30	—	
				$I_C = 1A$	$V_{CE} = 5V$		25
		$I_C = 7A$	$V_{CE} = 1V$	5	9		
				$T_C = 125^{\circ}C$	4		8
$V_{CE(sat)}^*$	Collector – Emitter Saturation Voltage	$I_C = 1A$	$I_B = 0.2A$		0.07	0.1	V
		$I_C = 4A$	$I_B = 0.8A$		0.2	0.5	
		$I_C = 7A$	$I_B = 1.4A$		0.4	0.8	
$V_{BE(sat)}^*$	Base – Emitter Saturation Voltage	$I_C = 4A$	$I_B = 0.8A$		0.9	1.2	V
		$I_C = 7A$	$I_B = 1.4A$		1.1	1.4	
DYNAMIC CHARACTERISTICS							
f_t	Transition Frequency	$I_C = 0.2A$	$V_{CE} = 4V$		20	MHz	
C_{ob}	Output Capacitance	$V_{CB} = 10V$	$f = 1MHz$		60	pF	

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