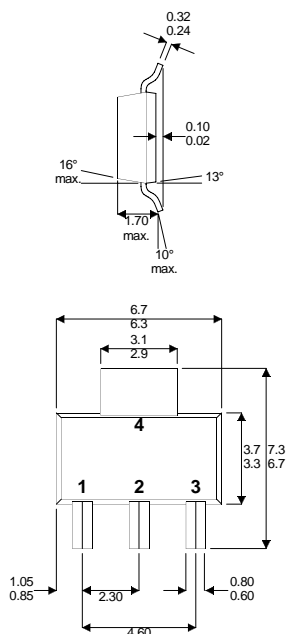


MECHANICAL DATA

Dimensions in mm



SOT-223

Pin 1 - Base
Pin 2 - Collector

Pin 3 - Emitter
Pin 4 - Collector

**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
- SURFACE MOUNT FOOT PRINT

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	4A
$I_{C(PK)}$	Peak Collector Current	7A
I_B	Base Current	2A
P_{tot}	Total Dissipation at $T_{case} = 25^{\circ}C$	3W
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	$I_C = 10mA$	500		V		
$V_{(BR)CBO}$	Collector – Base Breakdown Voltage	$I_C = 1mA$	1000				
$V_{(BR)EBO}$	Emitter – Base Breakdown Voltage	$I_E = 1mA$	10				
I_{CBO}	Collector – Base Cut-Off Current	$V_{CB} = 1000V$		10	μA		
			$T_C = 125^{\circ}C$	100			
I_{CEO}	Collector – Emitter Cut-Off Current	$I_B = 0$	$V_{CE} = 500V$	100	μA		
I_{EBO}	Emitter Cut-Off Current	$V_{EB} = 9V$	$I_C = 0$		10		
				$T_C = 125^{\circ}C$	100		
h_{FE}^*	DC Current Gain	$I_C = 0.1A$	$V_{CE} = 5V$	20	30	—	
		$I_C = 0.5A$	$V_{CE} = 5V$	9	15		
		$I_C = 1A$	$V_{CE} = 1V$	5	8		
$V_{CE(sat)}^*$	Collector – Emitter Saturation Voltage	$I_C = 100mA$	$I_B = 20mA$		0.05	0.1	V
		$I_C = 0.5A$	$I_B = 0.1A$		0.15	0.2	
		$I_C = 1A$	$I_B = 0.2A$		0.3	0.5	
$V_{BE(sat)}^*$	Base – Emitter Saturation Voltage	$I_C = 0.5A$	$I_B = 0.1A$		0.8	1	V
		$I_C = 1A$	$I_B = 0.2A$		0.9	1.1	
DYNAMIC CHARACTERISTICS							
f_t	Transition Frequency	$I_C = 0.2A$	$V_{CE} = 4V$		20	MHz	
C_{ob}	Output Capacitance	$V_{CB} = 10V$	$f = 1MHz$		20	pF	

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