



**THE DATASHEET OF**  
**2N3583**





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## 2N3583, 2N3584, 2N3585 Silicon NPN Transistors High Voltage, Medium Power Switch TO66 Type Package

**Description:**

The 2N3583, 2N3584, and 2N3585 are silicon transistors in a TO66 type package designed for high-speed switching and linear amplifier applications for high-voltage operational amplifiers, switching regulators, converters, inverters, deflection stages, and high fidelity amplifiers.

**Features:**

- TO66 Type Package
- Continuous Collector Current:  $I_C = 2A$
- Power Dissipation:  $P_D = 35W @ T_C = +25^\circ C$
- Collector-Emitter Saturation Voltage:  $V_{CE(sat)} = 0.75V (Max) @ I_C = 1A, I_B = 125mA$

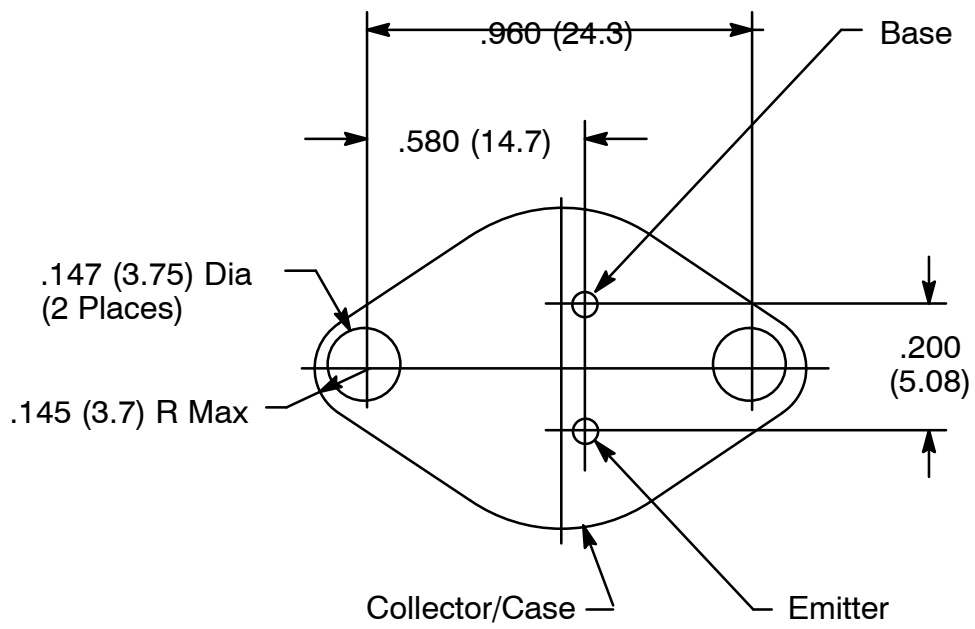
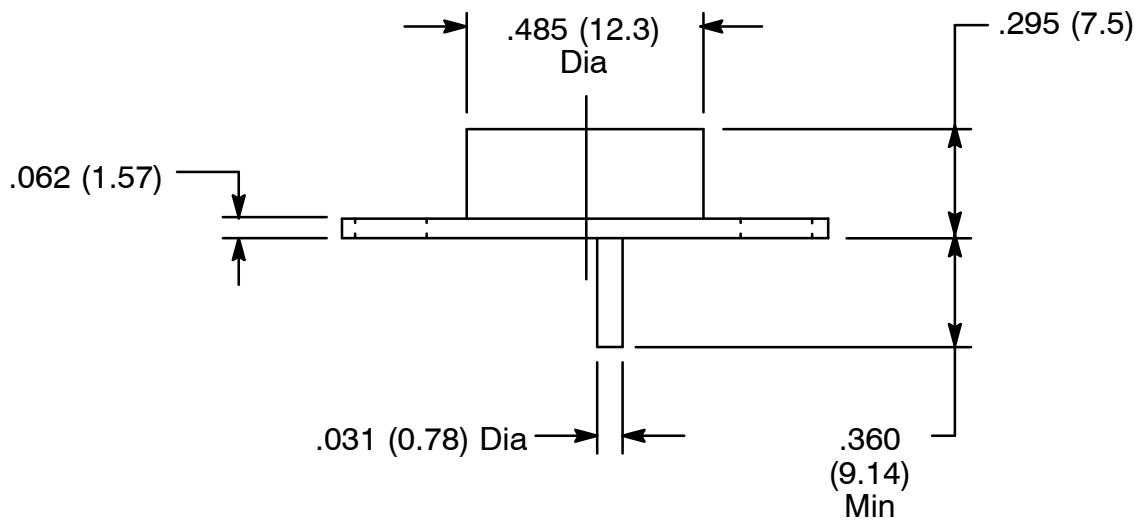
**Absolute Maximum Ratings:**

Collector-Emitter Voltage, $V_{CEO}$	
2N3583	175V
2N3584	250V
2N3585	300V
Collector-Base Voltage, $V_{CB}$	
2N3583	250V
2N3584	375V
2N3585	500V
Emitter-Base Voltage, $V_{EB}$	6V
Collector Current, $I_C$	
Continuous	
2N3583	1A
2N3584, 2N3585	2A
Peak	5A
Base Current, $I_B$	1A
Total Power Dissipation ( $T_C = +25^\circ C$ ), $P_D$	35W
Derate above $25^\circ C$	0.2W/ $^\circ C$
Operating Junction Temperature Range, $T_J$	-65° to +200° C
Storage Junction Temperature Range, $T_{stg}$	-65° to +200° C
Thermal Resistance, Junction to Case, $R_{\theta JC}$	5° C/W

**Electrical Characteristics:** ( $T_C = +25^\circ\text{C}$  unless otherwise specified)


Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Collector–Emitter Sustaining Voltage 2N3583	$V_{CEO(sus)}$	$I_C = 200\text{mA}, I_B = 0$ , Note 1	175	–	–	V
2N3584			250	–	–	V
2N3585			300	–	–	V
Collector Cutoff Current 2N3583	$I_{CEO}$	$V_{CE} = 150\text{V}, I_B = 0$	–	–	10	mA
2N3584, 2N3585			–	–	5	mA
Collector Cutoff Current 2N3583	$I_{CEX}$	$V_{CE} = 225\text{V}, V_{BE(off)} = 1.5\text{V}$	–	–	1	mA
		$V_{CE} = 225\text{V}, V_{BE(off)} = 1.5\text{V}, T_C = +150^\circ\text{C}$	–	–	3	mA
2N3584		$V_{CE} = 340\text{V}, V_{BE(off)} = 1.5\text{V}$	–	–	1	mA
		$V_{CE} = 300\text{V}, V_{BE(off)} = 1.5\text{V}, T_C = +100^\circ\text{C}$	–	–	3	mA
2N3585		$V_{CE} = 450\text{V}, V_{BE(off)} = 1.5\text{V}$	–	–	1	mA
		$V_{CE} = 300\text{V}, V_{BE(off)} = 1.5\text{V}, T_C = +100^\circ\text{C}$	–	–	3	mA
Emitter Cutoff Current 2N3583	$I_{EBO}$	$V_{EB} = 6\text{V}, I_C = 0$	–	–	5	mA
2N3584, 2N3585			–	–	0.5	mA
<b>ON Characteristics (Note 1)</b>						
DC Current Gain All Devices	$h_{FE}$	$I_C = 100\text{mA}, V_{CE} = 10\text{V}$	40	–	–	
2N3583		$I_C = 500\text{mA}, V_{CE} = 10\text{V}$	40	–	200	
		$I_C = 1\text{A}, V_{CE} = 10\text{V}$	10	–	–	
2N3584, 2N3585		$I_C = 1\text{A}, V_{CE} = 2\text{V}$	8	–	80	
		$I_C = 1\text{A}, V_{CE} = 10\text{V}$	25	–	100	
Collector–Emitter Saturation Voltage 2N3583	$V_{CE(sat)}$	$I_C = 1\text{A}, I_B = 125\text{mA}$	–	–	5.0	V
2N3584, 2N3585			–	–	0.75	V
Base–Emitter Saturation Voltage 2N3584 & 2N3585 <b>Only</b>	$V_{BE(sat)}$	$I_C = 1\text{A}, I_B = 100\text{mA}$	–	–	1.4	V
Base–Emitter ON Voltage	$V_{BE(on)}$	$I_C = 1\text{A}, V_{CE} = 10\text{V}$	–	–	1.4	V

Note 1. Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$ .



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