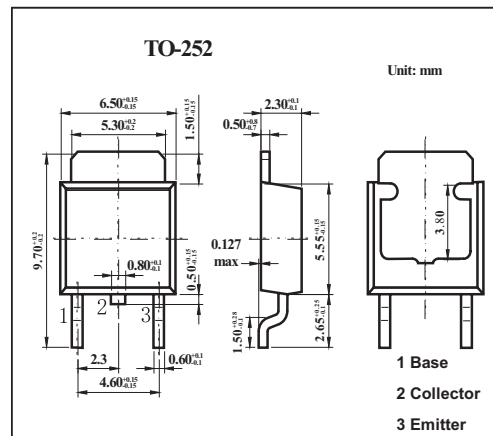


## NPN Silicon Epitaxial Transistor

## 2SD1584-Z

## ■ Features

- Low  $V_{CE(sat)}$ .
- High  $h_{FE}$ .

■ Absolute Maximum Ratings  $T_a = 25^\circ\text{C}$ 

Parameter	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	60	V
Collector-emitter voltage	$V_{CEO}$	60	V
Emitter-base voltage	$V_{EBO}$	7	V
Collector current (DC)	$I_C$	3	A
Collector Current (pulse) *1	$I_{CP}$	5	A
Total power dissipation $T_a = 25^\circ\text{C}$ *2	$P_T$	2	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

\* 1Pulse Test  $PW \leq 10\text{ms}$ , Duty Cycle  $\leq 50\%$ .

\*2 when mounted on ceramic substrate of  $7.5\text{cm}^2 \times 0.7\text{mm}$

## 2SD1584-Z

## ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector cutoff current	ICBO	V <sub>CB</sub> = 60 V, I <sub>E</sub> = 0			10	μA
Emitter cutoff current	IEBO	VEB = 5 V, I <sub>C</sub> = 0			10	μA
DC current gain *	hFE	V <sub>CE</sub> = 5 V, I <sub>C</sub> = 50 mA	600	1650		
		V <sub>CE</sub> = 5 V, I <sub>C</sub> = 500 mA	800	1800	3200	
		V <sub>CE</sub> = 5 V, I <sub>C</sub> = 3A	500	1400		
Collector saturation voltage *	V <sub>CE(sat)</sub>	I <sub>C</sub> = 2.0 A, I <sub>B</sub> = 20 mA		0.25	0.5	V
Base saturation voltage *	V <sub>BE(sat)</sub>	I <sub>C</sub> = 2.0 A, I <sub>B</sub> = 20 mA		0.8	1.2	V
Gain bandwidth product	f <sub>r</sub>	V <sub>CE</sub> = 5 V, I <sub>E</sub> = -100 mA	50	120		MHz
Output capacitance	C <sub>ob</sub>	V <sub>CB</sub> = 10 V, I <sub>E</sub> = 0, f = 1.0 MHz		20		pF
Turn-on time	t <sub>on</sub>	I <sub>C</sub> = 2 A, V <sub>CC</sub> = 10 V		0.9		μs
Storage time	t <sub>stg</sub>	I <sub>B1</sub> = -I <sub>B2</sub> = 20 mA		2.6		μs
Fall time	t <sub>f</sub>	R <sub>L</sub> = 5Ω		1		μs

\* Pulsed: PW ≤ 350 μs, duty cycle ≤ 2%

## ■ hFE Classification

Marking	M	L	K
hFE	800~1600	1000~2000	1600~3200