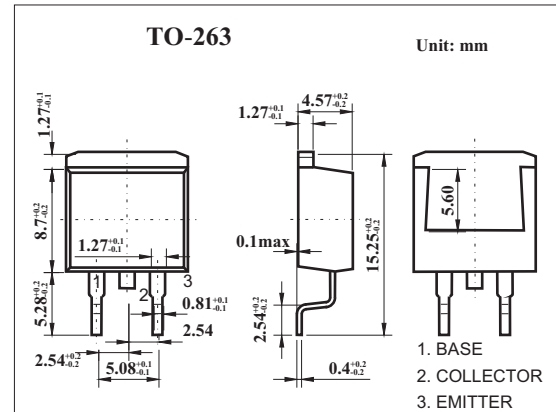


## NPN Silicon Power Transistor

### 3DD13007

#### ■ Features

- High Speed Switching
- Suitable for Switching Regulator and Motor Control



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

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	700	V
Collector-Emitter Voltage	$V_{CEO}$	400	V
Emitter-Base Voltage	$V_{EBO}$	9	V
Collector Current -Continuous	$I_C$	8	A
Collector Dissipation	$P_C$	2	W
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 to 150	$^\circ\text{C}$

#### ■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 1\text{mA}, I_E = 0$	700			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}, I_B = 0$	400			V
Emitter-base Breakdown voltage	$V_{(BR)EBO}$	$I_E = 1\text{mA}, I_C = 0$	9			V
Collector-base cut-off current	$I_{CBO}$	$V_{CB} = 700\text{V}, I_E = 0$			1	mA
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 7\text{V}, I_C = 0$			100	$\mu\text{A}$
DC current gain	$h_{FE}$	$V_{CE} = 5\text{V}, I_C = 2\text{A}$	8		40	
		$V_{CE} = 5\text{V}, I_C = 5\text{A}$	5		30	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 2\text{A}, I_B = 0.4\text{A}$			1	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 2\text{A}, I_B = 0.4\text{A}$			1.2	V
Collector output capacitance	$C_{ob}$	$V_{CE} = 10\text{V}, I_E = 0, f = 0.1\text{MHz}$		80		pF
Fall time	$t_f$	$I_{B1} = -I_{B2} = 1\text{A}, I_C = 5\text{A}, V_{CC} = 125\text{V}$			0.7	$\mu\text{s}$
Storage time	$t_s$	$I_{B1} = -I_{B2} = 1\text{A}, I_C = 5\text{A}, V_{CC} = 125\text{V}$			3	$\mu\text{s}$
Transition frequency	$f_T$	$V_{CE} = 10\text{V}, I_C = 500\text{mA}, f = 1\text{MHz}$	4			MHz

#### ■ $h_{FE}$ Classification

Rank						
$h_{FE}$	8~15	15~20	20~25	25~30	30~35	35~40

### 3DD13007

■ Typical Characteristics

