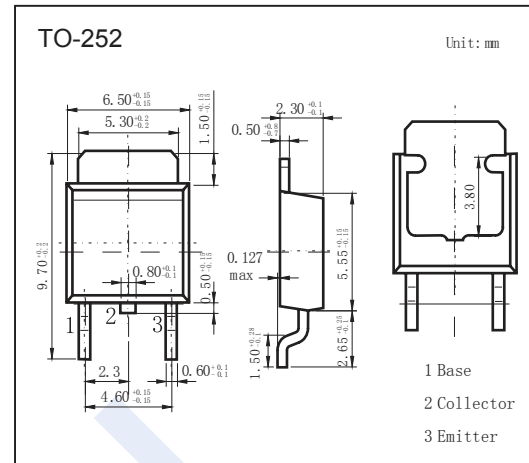


## NPN Transistors

## 2SD1758

## ■ Features

- Low  $V_{CE(sat)}$
- Complementary to 2SB1182

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

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	$V_{CBO}$	40	V
Collector - Emitter Voltage	$V_{CEO}$	32	
Emitter - Base Voltage	$V_{EBO}$	5	
Collector Current - Continuous	$I_C$	2	A
Collector Current - Pulse	$I_{CP}$	2.5	
Collector Power Dissipation $T_c=25^\circ\text{C}$	$P_C$	10	W
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55 to 150	

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	$V_{CBO}$	$I_C = 100 \mu\text{A}, I_E = 0$	40			V
Collector- emitter breakdown voltage	$V_{CEO}$	$I_C = 1 \text{ mA}, I_B = 0$	32			
Emitter - base breakdown voltage	$V_{EBO}$	$I_E = 100 \mu\text{A}, I_C = 0$	5			
Collector-base cut-off current	$I_{CBO}$	$V_{CB} = 30 \text{ V}, I_E = 0$			1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 4 \text{ V}, I_C = 0$			0.5	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 2 \text{ A}, I_B = 200 \text{ mA}$		0.5	0.8	V
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 2 \text{ A}, I_B = 200 \text{ mA}$			1.2	
DC current gain	$h_{FE}$	$V_{CE} = 3 \text{ V}, I_C = 500 \text{ mA}$	120		390	
Collector Output capacitance	$C_{ob}$	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$		30		$\text{pF}$
Transition frequency	$f_T$	$V_{CE} = 5 \text{ V}, I_E = -50 \text{ mA}, f = 100 \text{ MHz}$		100		$\text{MHz}$

■ Classification of  $h_{fe}$ 

Type	2SD1758-Q	2SD1758-R
Range	120-270	180-390

# NPN Transistors

## 2SD1758

### Typical Characteristics

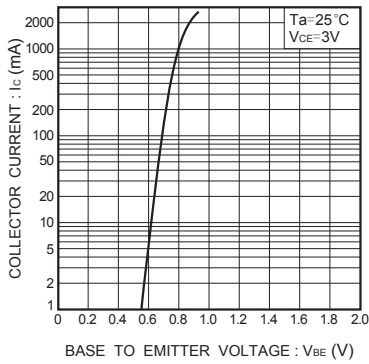


Fig.1 Grounded emitter propagation characteristics

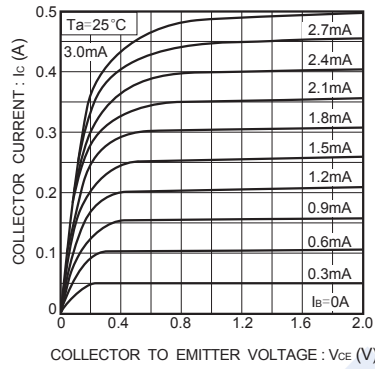


Fig.2 Grounded emitter output characteristics

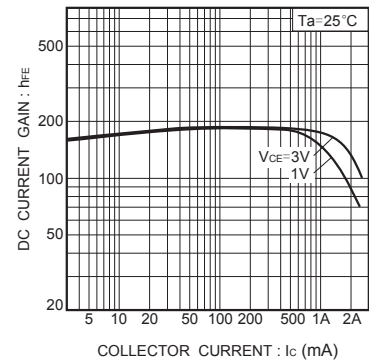


Fig.3 DC current gain vs. collector current

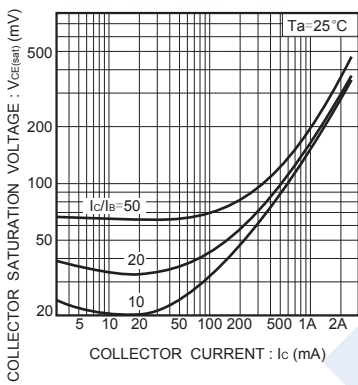


Fig.4 Collector-emitter saturation voltage vs. collector current

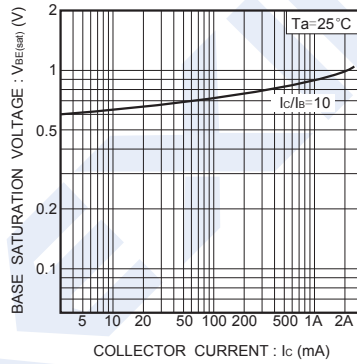


Fig.5 Collector-emitter saturation voltage vs. collector current

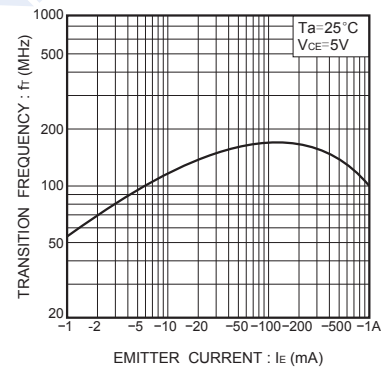


Fig.6 Transition frequency vs. emitter current

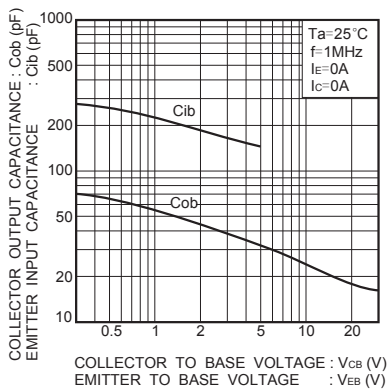


Fig.7 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

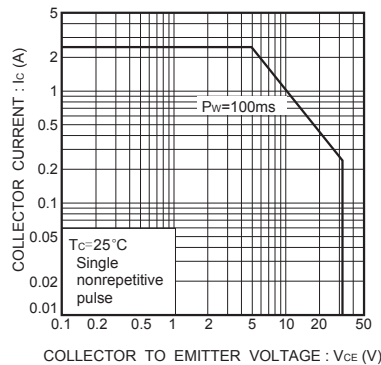


Fig.8 Safe operating area