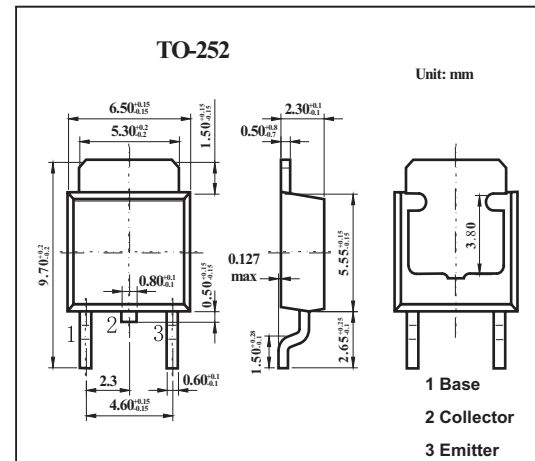


High-Current Switching Applications

2SD1815

■ Features

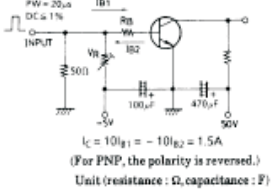
- Low collector-to-emitter saturation voltage.
- Excellent linearity of h_{FE} .
- High f_T .
- Fast switching time.

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

Parameter	Symbol	Rating	Unit
Collector-base voltage	V_{CB0}	120	V
Collector-emitter voltage	V_{CE0}	100	V
Emitter-base voltage	V_{EB0}	6	V
Collector current	I_C	3	A
Collector current (pulse)	I_{CP}	6	A
Collector dissipation	P_C	1	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

2SD1815

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit	
Collector cutoff current	ICBO	V _{CB} = 100V , I _E = 0			1	μA	
Emitter cutoff current	IEBO	V _{EB} = 4V , I _C = 0			1	μA	
DC current Gain	hFE	V _{CE} = 5V , I _C = 0.5A	70		400		
		V _{CE} = 5V , I _C = 2A	40				
Gain bandwidth product	f _T	V _{CE} = 10V , I _C = 0.5A		180		MHz	
Output capacitance	C _{ob}	V _{CB} = 10V , f = 1MHz		25		pF	
Collector-emitter saturation voltage	V _{CE(sat)}	I _C = 1.5A , I _B = 0.15A		150	400	mV	
Base-to-emitter saturation voltage	V _{BE(sat)}	I _C = 1.5A , I _B = 0.15A		0.9	1.2	V	
Collector-to-base breakdown voltage	V _{(BR)CBO}	I _C = 10μA , I _E = 0	120			V	
Collector-to-emitter breakdown voltage	V _{(BR)CEO}	I _C = 1mA , R _{BE} = ∞	100			V	
Emitter-to-base breakdown voltage	V _{(BR)EBO}	I _E = 10μA , I _C = 0	6			V	
Turn-on time	t _{on}	 <p> $I_C = 10I_{B1} = -10I_{B2} = 1.5A$ (For PNP, the polarity is reversed.) Unit (resistance : Ω, capacitance : F) </p>		100		ns	
Storage time	t _{stg}				900		ns
Fall time	t _f				50		ns

■ hFE Classification

Rank	Q	R	S	T
hFE	70~140	100~200	140~280	200~400