

2SD1990

Silicon NPN Triple-Diffused Planar Type

Power Switching

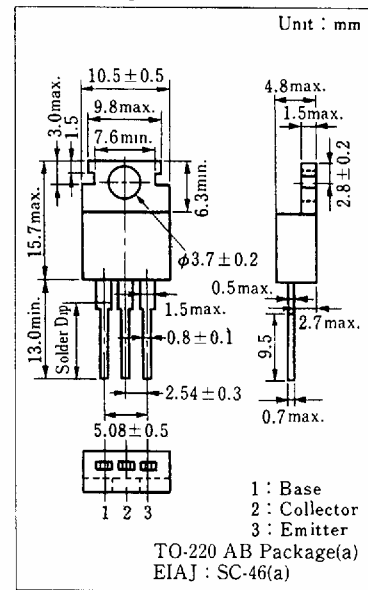
■ Features

- High speed switching
- Good linearity of DC current gain (h_{FE})
- Large collector power dissipation (P_C)

■ Absolute Maximum Ratings ($T_c=25^\circ\text{C}$)

Item	Symbol	Value	Unit	
Collector-base voltage	V_{CB0}	80	V	
Collector-emitter voltage	V_{CEO}	60	V	
Emitter-base voltage	V_{EBO}	6	V	
Peak collector current	I_{CP}	8	A	
Collector current	I_C	4	A	
Base-emitter voltage	I_B	1	A	
Collector power dissipation	P_C	$T_c=25^\circ\text{C}$	35	W
		$T_a=25^\circ\text{C}$	1.4	
Junction temperature	T_j	150	$^\circ\text{C}$	
Storage temperature	T_{stg}	$-55 \sim +150$	$^\circ\text{C}$	

■ Package Dimensions



■ Electrical Characteristics ($T_c=25^\circ\text{C}$)

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	I_{CBO}	$V_{CB}=80\text{V}, I_E=0$			100	μA
Emitter cutoff current	I_{EBO}	$V_{EB}=6\text{V}, I_C=0$			100	μA
Collector-emitter voltage	V_{CEO}	$I_C=25\text{mA}, I_B=0$	60			V
DC current gain	h_{FE1}	$V_{CE}=4\text{V}, I_C=1\text{A}$	40		320	
	h_{FE2}	$V_{CE}=4\text{V}, I_C=4\text{A}$	20			
Base-emitter voltage	V_{BE}	$V_{CE}=4\text{V}, I_C=4\text{A}$			2.0	V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=4\text{A}, I_B=0.4\text{A}$			1.5	V
Transition frequency	f_T	$V_{CE}=12\text{V}, I_C=0.2\text{A}, f=10\text{MHz}$		80		MHz
Turn-on time	t_{on}	$I_C=4\text{A}$		0.3		μs
Storage time	t_{stg}	$I_{B1}=0.4\text{A}, I_{B2}=-0.4\text{A}$		1.0		μs
Collector current fall time	t_f	$V_{CC}=50\text{V}$		0.2		μs

* h_{FE1} Classifications

Class	R	Q	P	O
h_{FE1}	40~90	70~150	120~250	160~320

