

2SD2000

Silicon NPN Triple-Diffused Planar Type

Power Switching

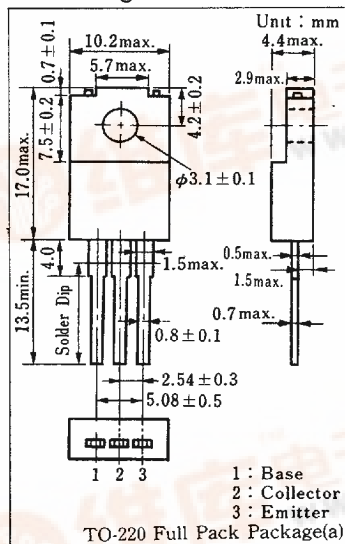
■ Features

- High speed switching
- Good linearity of DC current gain (h_{FE})
- Large collector power dissipation (P_C)
- “Full Pack” package for simplified mounting on a heat sink with one screw

■ Absolute Maximum Ratings (Tc=25°C)

Item		Symbol	Value	Unit
Collector-base voltage		V_{CBO}	80	V
Collector-emitter voltage		V_{CEO}	60	V
Emitter-base voltage		V_{FBO}	6	V
Peak collector current		I_{CP}	8	A
Collector current		I_C	4	A
Base current		I_B	1	A
Collector power dissipation	$T_C = 25^\circ\text{C}$	P_C	35	W
	$T_a = 25^\circ\text{C}$		2	
Junction temperature		T_j	150	$^\circ\text{C}$
Storage temperature		T_{stg}	$-55 \sim +150$	$^\circ\text{C}$

■ Package Dimensions

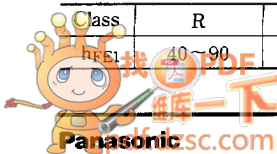


■ Electrical Characteristics (T_c=25°C)

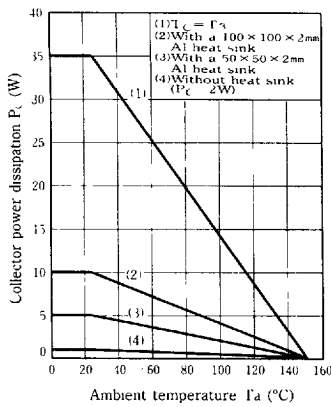
Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	I_{CBO}	$V_{CB}=80V, I_E=0$			100	μA
Emitter cutoff current	I_{EBO}	$V_{EB}=6V, I_C=0$			100	μA
Collector isolation voltage	V_{CEO}	$I_C=25mA, I_B=0$	60			V
DC current gain	h_{FE1}^*	$V_{CE}=4V, I_C=1A$	40		320	
	h_{FE2}	$V_{CE}=4V, I_C=4A$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

*h_{FE1} Classifications

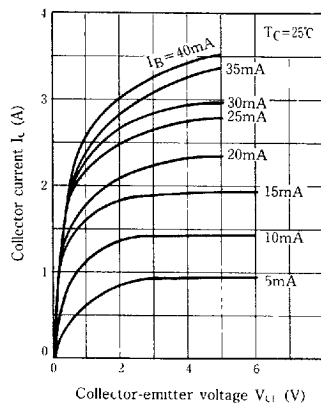
Class	R	Q	P	O
HFEL	40~90	70~150	120~250	160~320



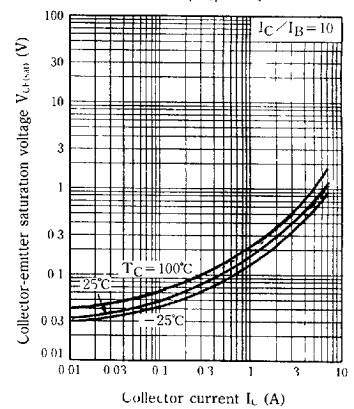
$P_C - T_a$



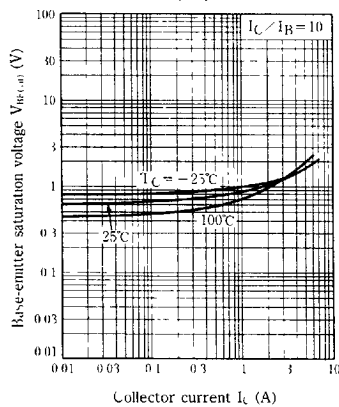
$I_C - V_{CE}$



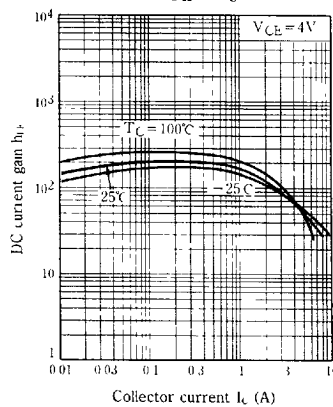
$V_{CE(sat)} - I_C$



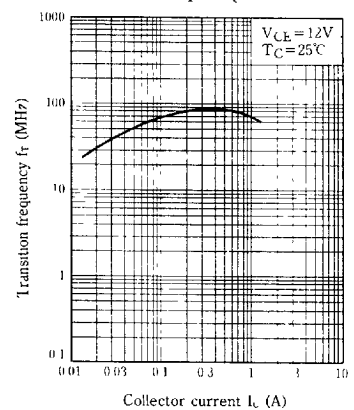
$V_{BE(sat)} - I_C$



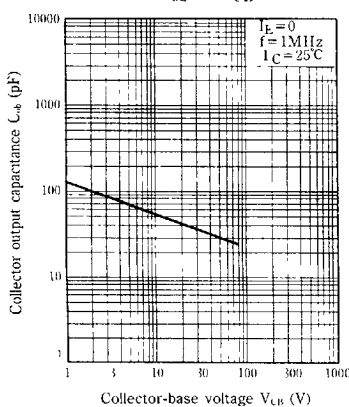
$h_{FE} - I_C$



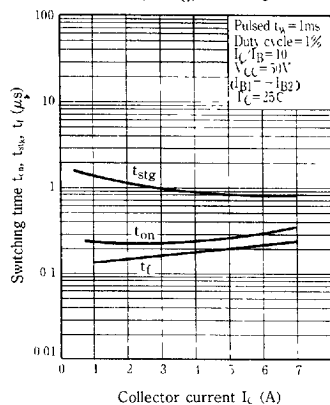
$f_T - I_C$



$C_{ob} - V_{CB}$



$t_{on}, t_{stg}, t_f - I_C$



Safety operation area-forward bias (ASO)

