2SD1775, 2SD1775A

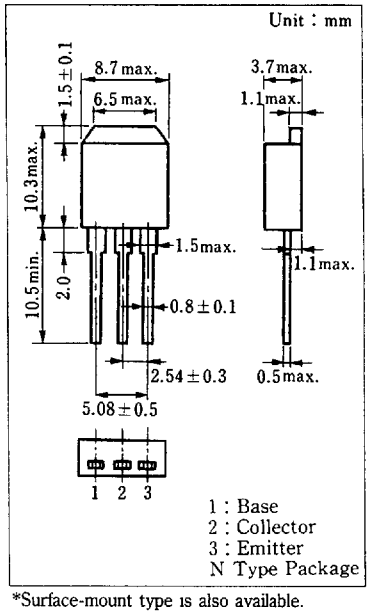
Silicon NPN Triple-Diffused Planar Type

High DC Current Gain (h_{FE}), Power Amplifier

■ Features

- High DC current gain (h_{FE})
- Good linearity of DC current gain (h_{FE})
- "N Type" package configuration with a cooling fin for direct soldering on PC board of a small-size electronic equipment

■ Package Dimensions



*Surface-mount type is also available. (Refer to p.82.)

■ Absolute Maximum Ratings (Tc=25°C)

Item		Symbol	Value	Unit
Collector-base voltage	2SD1775	V_{CBO}	80	V
	2SD1775A		100	V
Collector-emitter voltage	2SD1775	V_{CEO}	60	V
	2SD1775A		80	V
Emitter-base voltage		V_{EBO}	6	V
Peak collector current		I_{CP}	4	A
Collector current		I_C	2	A
Base current		I_B	0.5	A
Collector power dissipation	Tc=25 °C	P_C	25	W
	Ta=25 °C		1.3	
Junction temperature		T_j	150	°C
Storage temperature		T_{stg}	−55 ~ +150	°C

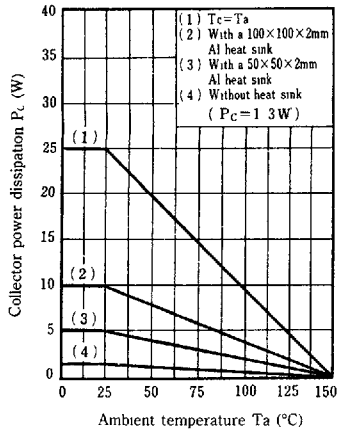
■ Electrical Characteristics (Tc=25°C)

Item		Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	2SD1775	I_{CBO}	V_{CB}=80 V, I_E=0			100	μA
	2SD1775A		V_{CB}=100 V, I_E=0			100	μA
Collector cutoff current		I_{CEO}	V_{CE}=40 V, I_B=0			100	μA
Emitter cutoff current		I_{EBO}	V_{EB}=6 V, I_C=0			100	μA
Collector-emitter voltage	2SD1775	V_{CEO}	I_C=25 mA, I_B=0	60			V
	2SD1775A			80			
DC current gain		h_{FE}*	V_{CE}=4 V, I_C=300 mA	500		2500	
Collector-emitter saturation voltage		$V_{CE(sat)}$	I_C=1 A, I_B=25 mA			1.0	V
Base-emitter saturation voltage		$V_{BE(sat)}$	I_C=1 A, I_B=25 mA			1.2	V
Transition frequency		f_T	V_{CE}=12V, I_C=200mA, f=10MHz		40		MHz
Collector output capacitance		C_{ob}	V_{CB}=10V, I_E=0, f=1MHz		30		pF
Turn-on time		t_{on}	I_C=1A, I_{B1}=25mA, I_{B2}=−25mA V_{CC}=50V		0.6		μs
Storage time		t_{stg}			2.5		μs
Fall time		t_f			1.0		μs

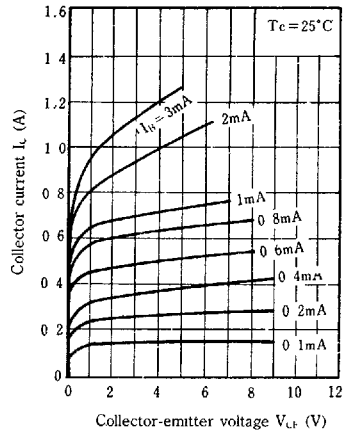
*h_{FE} Classifications

Class	Q	P	O
h_{FE}	500 ~ 1000	800 ~ 1500	1200 ~ 2500

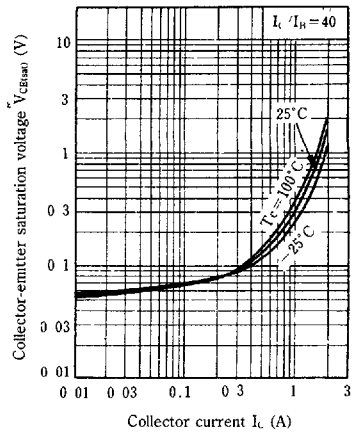
$P_C - Ta$



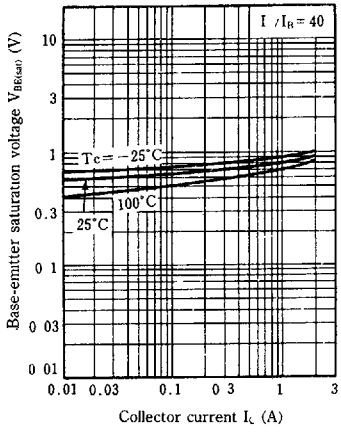
$I_C - V_{CE}$



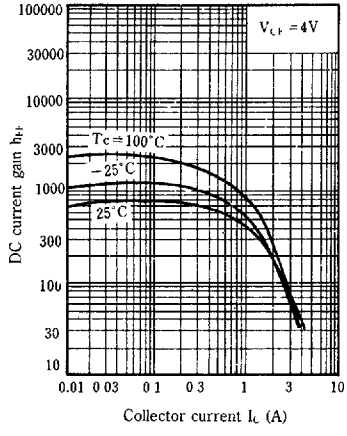
$V_{CE(sat)} - I_C$



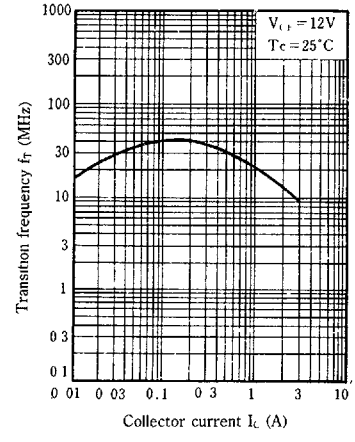
$V_{BE(sat)} - I_C$



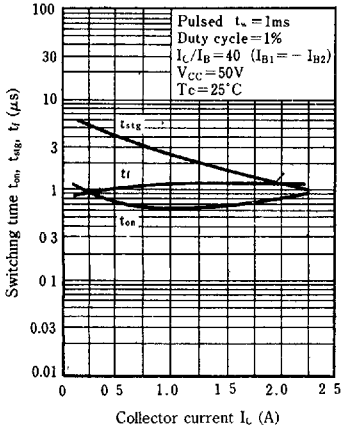
$h_{FE} - I_C$



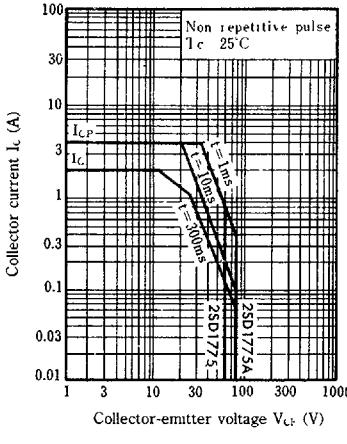
$f_T - I_C$



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



Area of safe operation (ASO)



Note) Refer to P.862 (on 2SD1771/A) for $R_{th(t)} - t$ characteristics.