

# 2SD1776, 2SD1776A

## Silicon NPN Triple-Diffused Planar Type

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

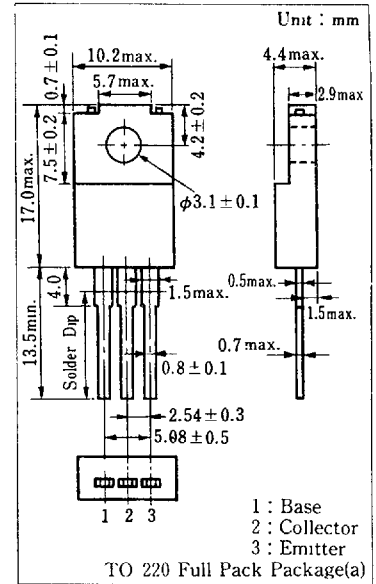
### ■ Features

- High DC current gain ( $h_{FE}$ )
- Good linearity of DC current gain ( $h_{FE}$ )
- "Full Pack" package for simplified mounting on a heat sink with one screw

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

Item	Symbol	Value	Unit
Collector-base voltage	2SD1776	80	V
	2SD1776A	100	V
Collector-emitter voltage	2SD1776	60	V
	2SD1776A	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	$T_c=25^\circ\text{C}$	25	W
	$T_a=25^\circ\text{C}$	2	
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 ~ +150	$^\circ\text{C}$

### ■ Package Dimensions



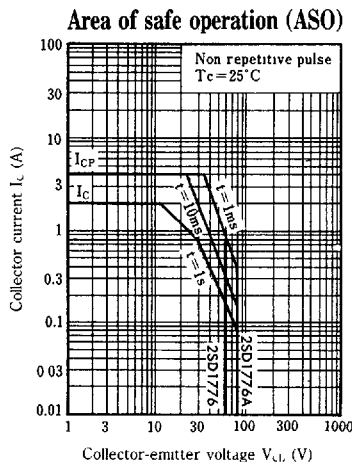
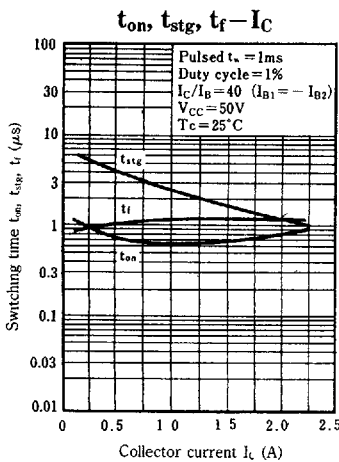
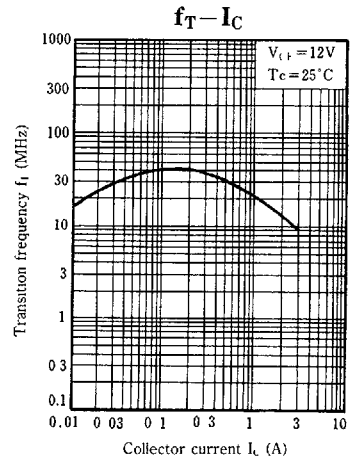
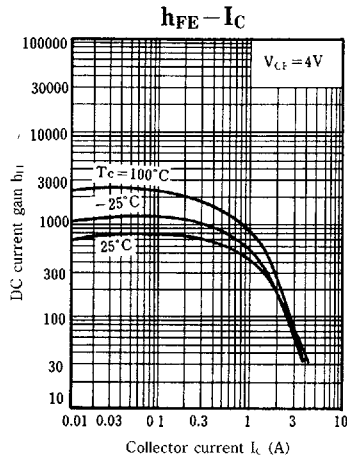
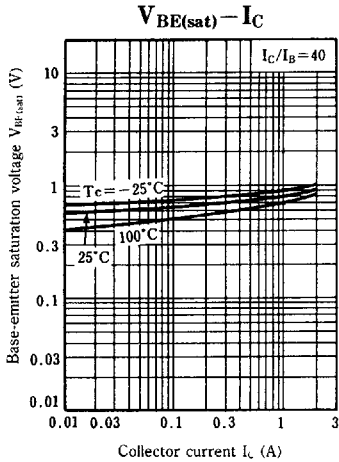
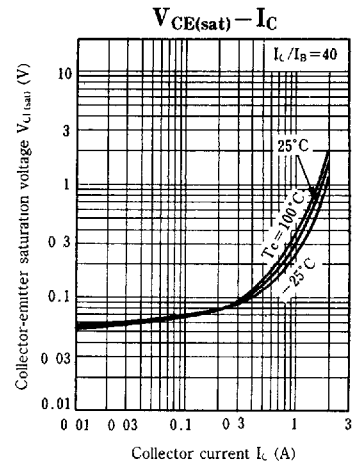
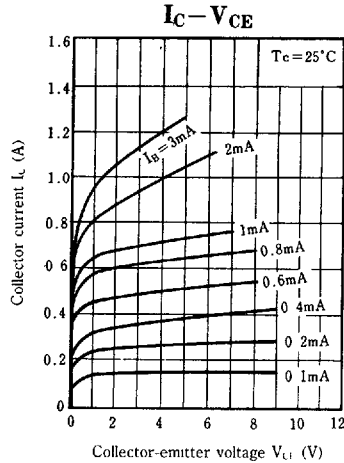
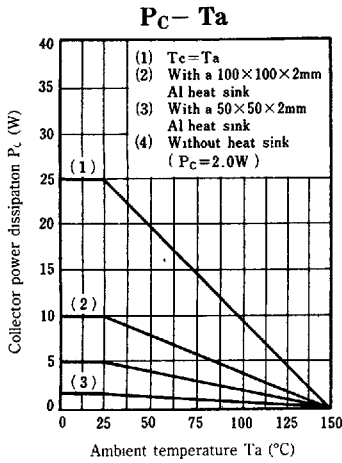
### ■ Electrical Characteristics ( $T_c=25^\circ\text{C}$ )

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB}=80\text{V}, I_E=0$			100	$\mu\text{A}$
		$V_{CB}=100\text{V}, I_E=0$			100	$\mu\text{A}$
Collector cutoff current	$I_{CEO}$	$V_{CE}=40\text{V}, I_B=0$			100	$\mu\text{A}$
Emitter cutoff current	$I_{EBO}$	$V_{EB}=6\text{V}, I_C=0$			100	$\mu\text{A}$
Collector-emitter voltage	$V_{CE0}$	$I_C=25\text{mA}, I_B=0$	85			V
Collector-emitter voltage	$V_{CE0}$	$I_C=25\text{mA}, I_B=0$	60			V
			80			V
DC current gain	$h_{FE}$	$V_{CE}=4\text{V}, I_C=300\text{mA}$	500		2500	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=1\text{A}, I_B=25\text{mA}$			1	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=1\text{A}, I_B=25\text{mA}$			1.2	V
Transition frequency	$f_T$	$V_{CE}=12\text{V}, I_C=200\text{mA}, f=10\text{MHz}$		40		MHz
Collector output capacitance	$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$		30		pF
Turn-on time	$t_{on}$	$I_C=1\text{A}, I_{B1}=25\text{mA}, I_{B2}=-25\text{mA}$ $V_{CC}=50\text{V}$		0.6		$\mu\text{s}$
Storage time	$t_{stg}$		2.5		$\mu\text{s}$	
Fall time	$t_f$		1		$\mu\text{s}$	

### \* $h_{FE}$ Classifications

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

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Note) Refer to P.864 (on 2SD1772/A) for  $R_{th(j-c)} - t$  characteristics.