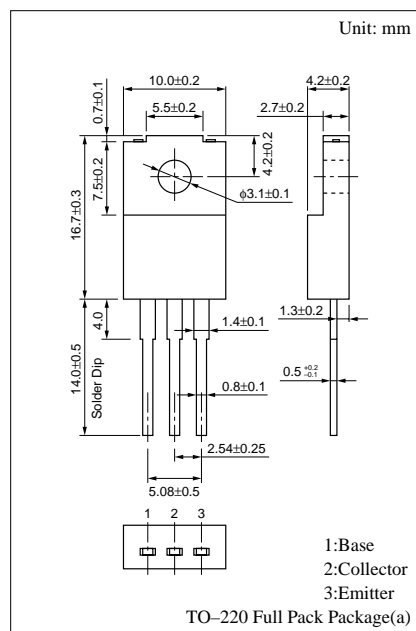


## Silicon NPN triple diffusion planar type

## ■ Features

- High forward current transfer ratio  $h_{FE}$
- Satisfactory linearity of forward current transfer ratio  $h_{FE}$
- Full-pack package which can be installed to the heat sink with one screw

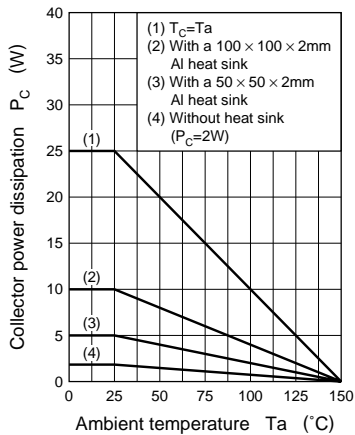
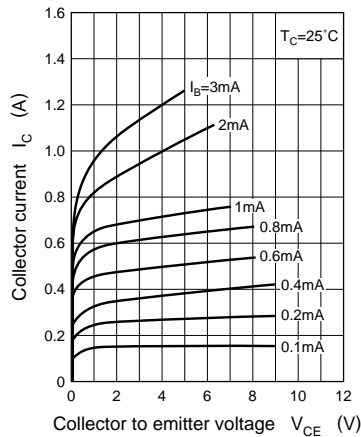
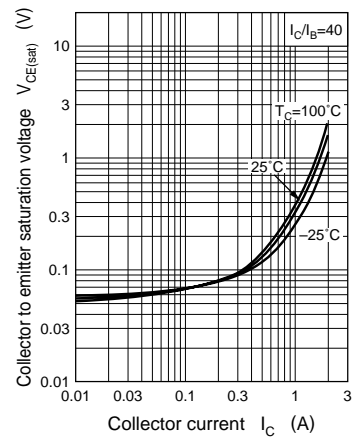
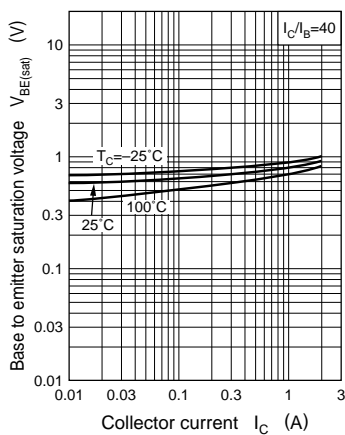
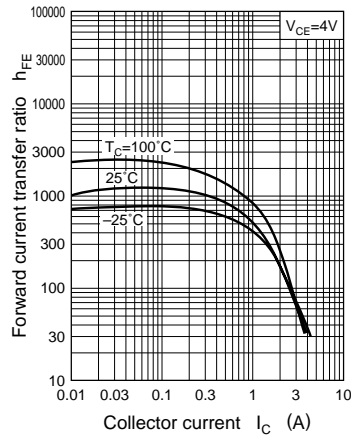
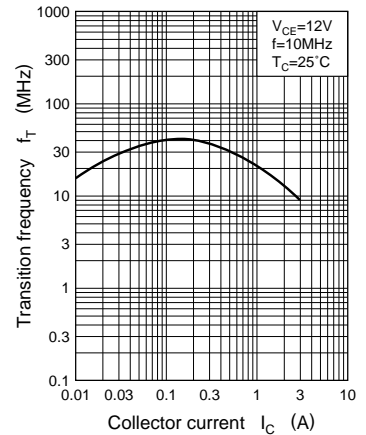
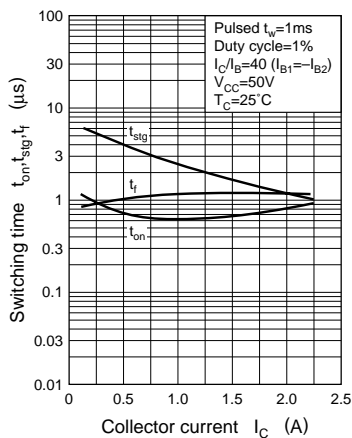
Parameter		Symbol	Ratings	Unit
Collector to base voltage	2SD1776	$V_{CBO}$	80	V
	2SD1776A		100	
Collector to emitter voltage	2SD1776	$V_{CEO}$	60	V
	2SD1776A		80	
Emitter to base voltage		$V_{EBO}$	6	V
Peak collector current		$I_{CP}$	4	A
Collector current		$I_C$	2	A
Base current		$I_B$	0.5	A
Collector power dissipation	$T_C=25^{\circ}\text{C}$	$P_C$	25	W
	$T_a=25^{\circ}\text{C}$		2	
Junction temperature		$T_j$	150	$^{\circ}\text{C}$
Storage temperature		$T_{stg}$	-55 to +150	$^{\circ}\text{C}$



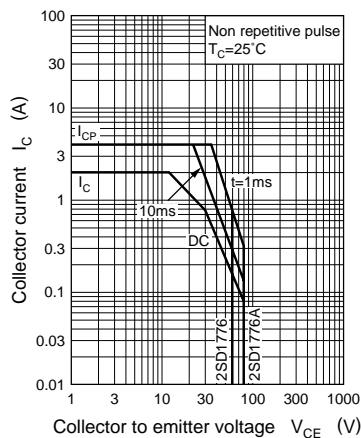
Parameter		Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	2SD1776	$I_{CBO}$	$V_{CB} = 80V, I_E = 0$			100	$\mu A$
	2SD1776A		$V_{CB} = 100V, I_E = 0$			100	
Collector cutoff current		$I_{CEO}$	$V_{CE} = 40V, I_B = 0$			100	$\mu A$
Emitter cutoff current		$I_{EBO}$	$V_{EB} = 6V, I_C = 0$			100	$\mu A$
Collector to emitter voltage	2SD1776	$V_{CEO}$	$I_C = 25mA, I_B = 0$	60			V
	2SD1776A			80			
Forward current transfer ratio		$h_{FE}^*$	$V_{CE} = 4V, I_C = 300mA$	500		1500	
Collector to emitter saturation voltage		$V_{CE(sat)}$	$I_C = 1A, I_B = 25mA$			1	V
Base to emitter saturation voltage		$V_{BE(sat)}$	$I_C = 1A, I_B = 25mA$			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		$\mu s$
Storage time		$t_{stg}$			2.5		$\mu s$
Fall time		$t_f$			1		$\mu s$

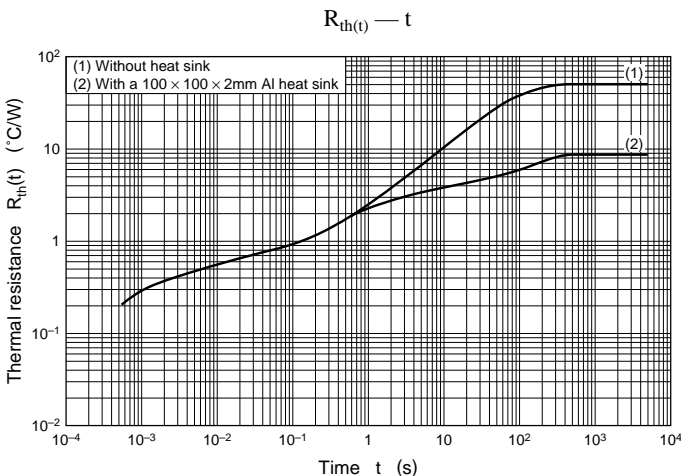
### \*h<sub>FE</sub> Rank classification

Rank	Q	P
$h_{FE}$	500 to 1000	800 to 1500

$P_C - T_a$  $I_C - V_{CE}$  $V_{CE(sat)} - I_C$  $V_{BE(sat)} - I_C$  $h_{FE} - I_C$  $f_T - I_C$  $t_{on}, t_{stg}, t_f - I_C$ 

Area of safe operation (ASO)





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