

Power Transistors



2SD1775, 2SD1775A

Silicon NPN triple diffusion planar type

For high-speed switching and high current amplification ratio

Features

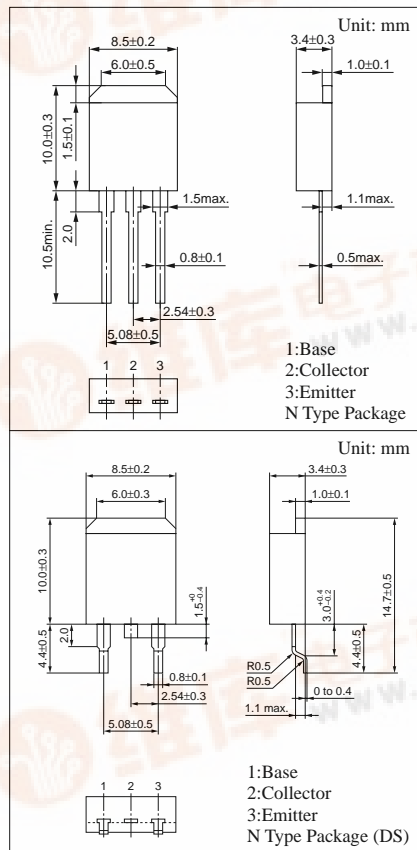
- High forward current transfer ratio h_{FE}
- Satisfactory linearity of forward current transfer ratio h_{FE}
- N type package enabling direct soldering of the radiating fin to the printed circuit board, etc. of small electronic equipment.

Absolute Maximum Ratings ($T_C=25^\circ C$)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	2SD1775	80	V
	2SD1775A	100	
Collector to emitter voltage	2SD1775	60	V
	2SD1775A	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	$T_C=25^\circ C$	25	W
	$T_a=25^\circ C$	1.3	
Junction temperature	T_j	150	$^\circ C$
Storage temperature	T_{stg}	-55 to +150	$^\circ C$

Electrical Characteristics ($T_C=25^\circ C$)

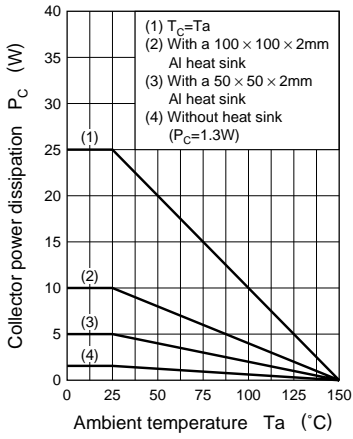
Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	2SD1775	$V_{CB} = 80V, I_E = 0$			100	μA
	2SD1775A	$V_{CB} = 100V, I_E = 0$			100	
Collector cutoff current	I_{CEO}	$V_{CE} = 40V, I_B = 0$			100	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = 6V, I_C = 0$			100	μA
Collector to emitter voltage	2SD1775	$I_C = 25mA, I_B = 0$	60			V
	2SD1775A		80			
Forward current transfer ratio	h_{FE}^*	$V_{CE} = 4V, I_C = 300mA$	500		1500	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 1A, I_B = 25mA$			1.0	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		μs
Storage time	t_{stg}				2.5	μs
Fall time	t_f				1.0	μs



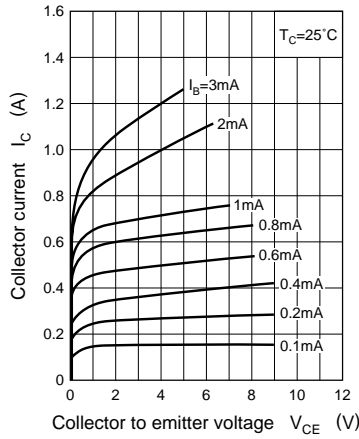
h_{FE} Rank classification

Rank	Q	P
1	500 to 1000	800 to 1500

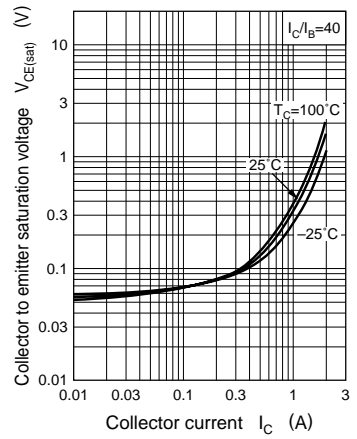
$P_C - T_a$



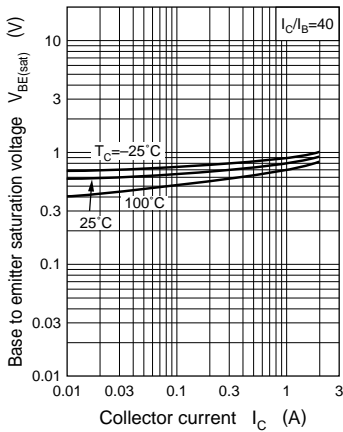
$I_C - V_{CE}$



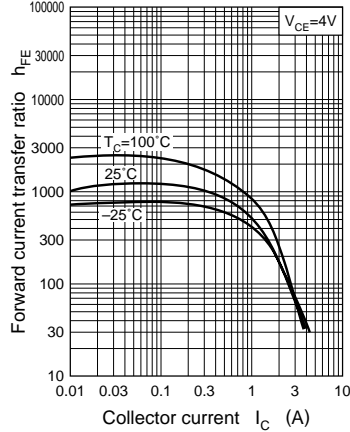
$V_{CE(sat)} - I_C$



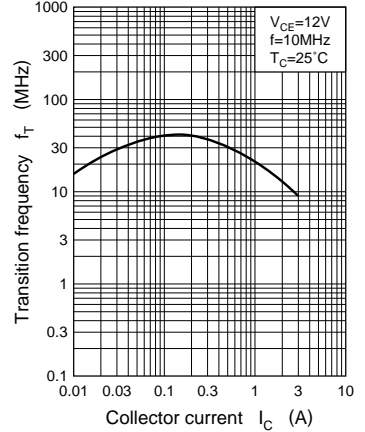
$V_{BE(sat)} - I_C$



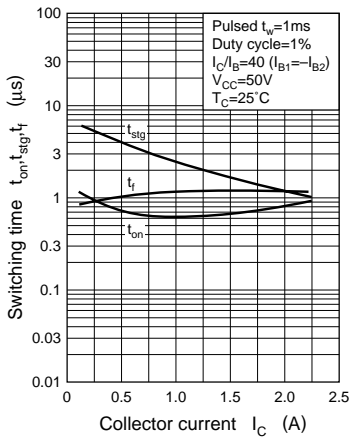
$h_{FE} - I_C$



$f_T - I_C$



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



Area of safe operation (ASO)

