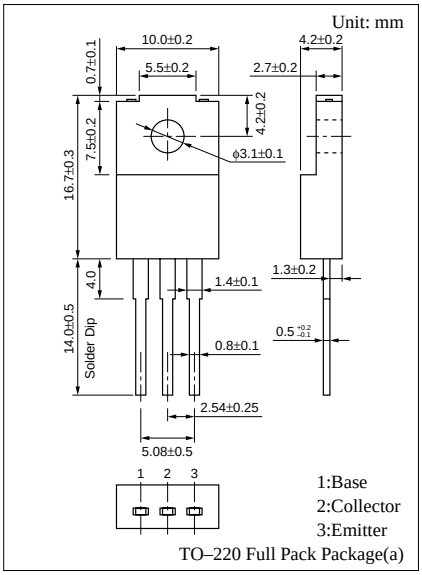
2SD1535

Silicon NPN triple diffusion planar type Darlington

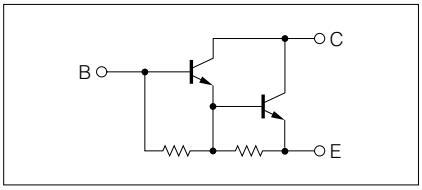
For high power amplification

Features

- Extremely satisfactory linearity of the forward current transfer ratio h_{FE}
- High collector to base voltage V_{CBO}
- Wide area of safe operation (ASO)
- Full-pack package which can be installed to the heat sink with one screw



Internal Connection



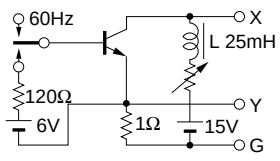
Absolute Maximum Ratings (T_C=25˚C)

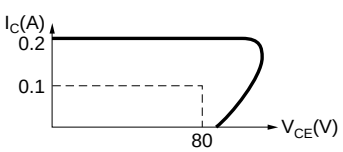
Parameter		Symbol	Ratings	Unit
Collector to base voltage		V_{CBO}	500	V
Collector to emitter voltage		V_{CEO}	400	V
Emitter to base voltage		V_{EBO}	12	V
Peak collector current		I_{CP}	14	A
Collector current		I_C	7	A
Base current		I_B	0.5	A
Collector power dissipation	T_C=25°C	P_C	50	W
	Ta=25°C		2	
Junction temperature		T_j	150	˚C
Storage temperature		T_{stg}	–55 to +150	˚C

Electrical Characteristics (T_C=25˚C)

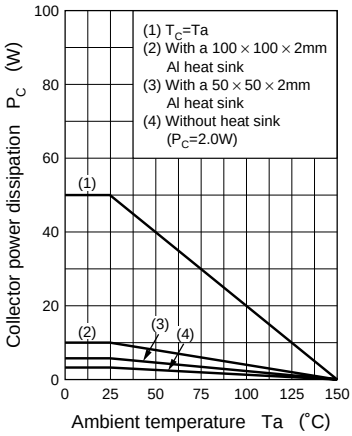
Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	V_{CB} = 500V, I_E = 0			0.1	mA
	I_{CEO}	V_{CE} = 400V, I_B = 0			0.1	mA
Emitter cutoff current	I_{EBO}	V_{EB} = 12V, I_C = 0			100	mA
Collector to emitter voltage	$V_{CEO(sus)}$*	I_C = 100mA, R_{BZ} = ∞, L = 25mH	400			mA
Forward current transfer ratio	h_{FE1}	V_{CE} = 2V, I_C = 2A	500			
	h_{FE2}	V_{CE} = 2V, I_C = 6A	200			
Collector to emitter saturation voltage	$V_{CE(sat)}$	I_C = 7A, I_B = 70mA			2.0	V
Base to emitter saturation voltage	$V_{BE(sat)}$	I_C = 7A, I_B = 70mA			2.5	V
Transition frequency	f_T	V_{CE} = 10V, I_C = 0.5A, f = 1MHz		20		MHz
Turn-on time	t_{on}	I_C = 7A, I_{B1} = 70mA, I_{B2} = –70mA, V_{CC} = 300V		1.5		µs
Storage time	t_{stg}			5.0		µs
Fall time	t_f			6.5		µs

*$V_{CEO(sus)}$ Test circuit

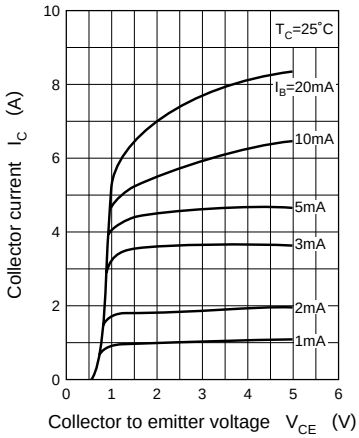




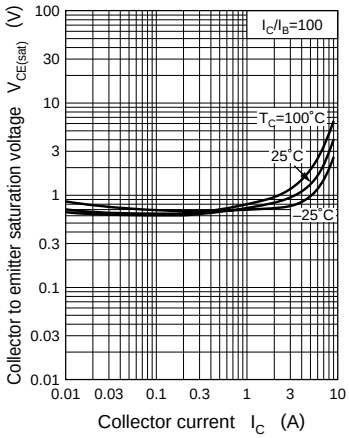
P_C — Ta



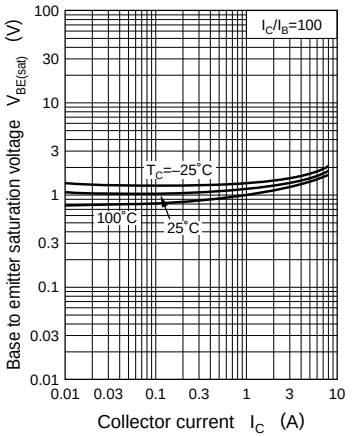
I_C — V_{CE}



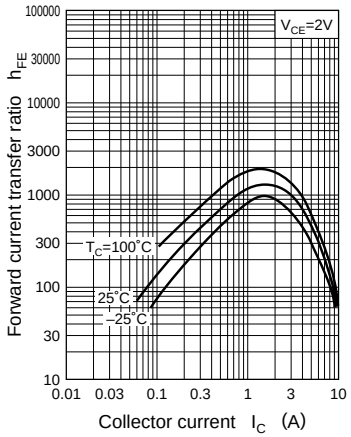
$V_{CE(sat)}$ — I_C



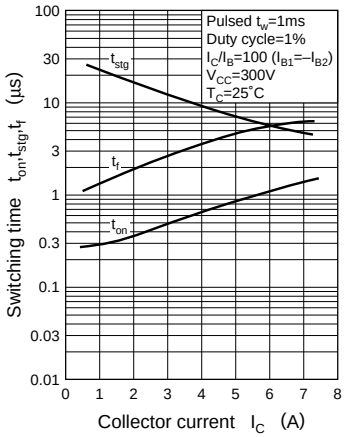
$V_{BE(sat)}$ — I_C



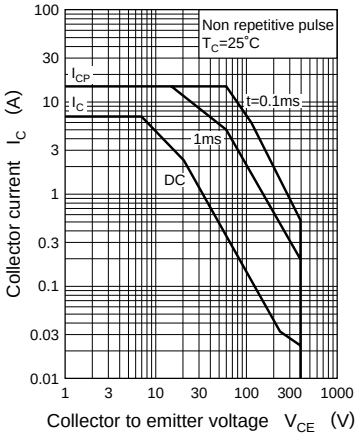
h_{FE} — I_C



t_{on}, t_{stg}, t_f — I_C



Area of safe operation (ASO)



$R_{th(t)}$ — t