

2SD1535

Silicon NPN triple diffusion planar type Darlington

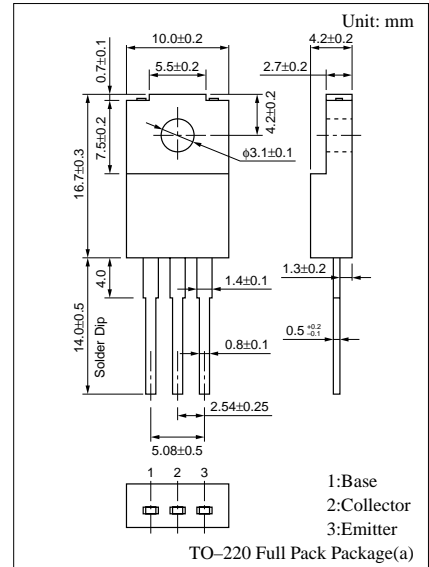
For high power amplification

Features

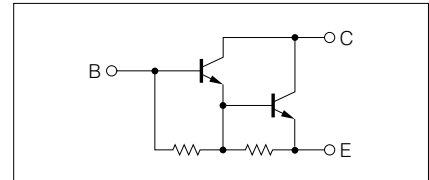
- Extremely satisfactory linearity of the forward current transfer ratio h_{FE}
- High collector to base voltage V_{CBO}
- Wide area of safe operation (ASO)
- Full-pack package which can be installed to the heat sink with one screw

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

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	P_C	$T_C=25^\circ\text{C}$	50	W
		$T_a=25^\circ\text{C}$	2	
Junction temperature	T_j	150	$^\circ\text{C}$	
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$	



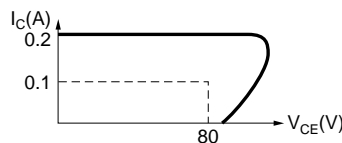
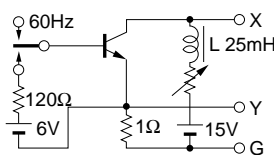
Internal Connection



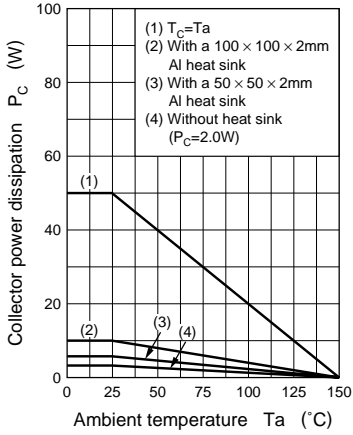
Electrical Characteristics ($T_C=25^\circ\text{C}$)

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

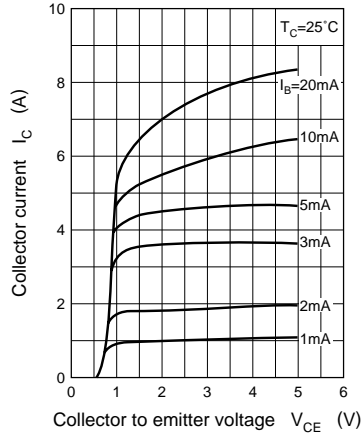
* $V_{CEO(sus)}$ Test circuit



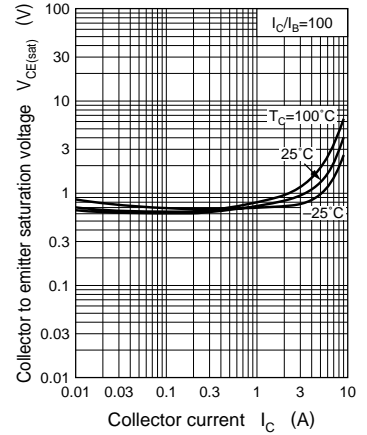
$P_C - T_a$



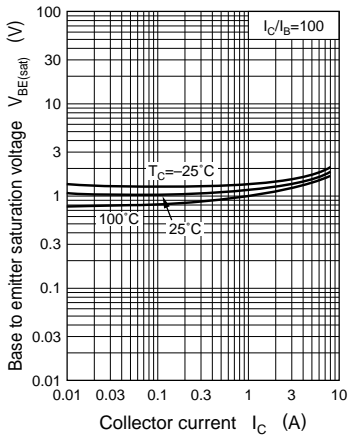
$I_C - V_{CE}$



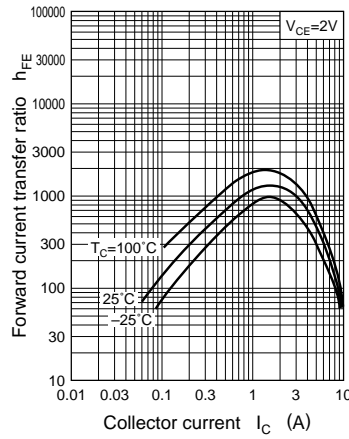
$V_{CE(sat)} - I_C$



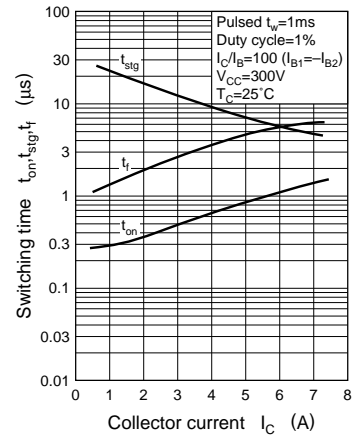
$V_{BE(sat)} - I_C$



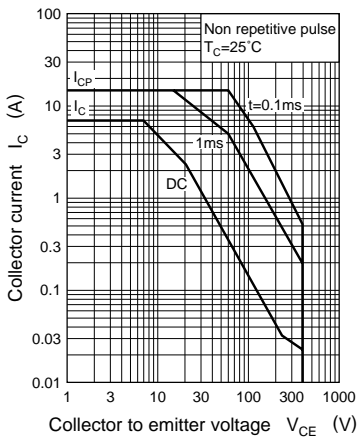
$h_{FE} - I_C$



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



Area of safe operation (ASO)



$R_{th(t)} - t$

