

2SD1323

Silicon NPN triple diffusion planar type Darlington

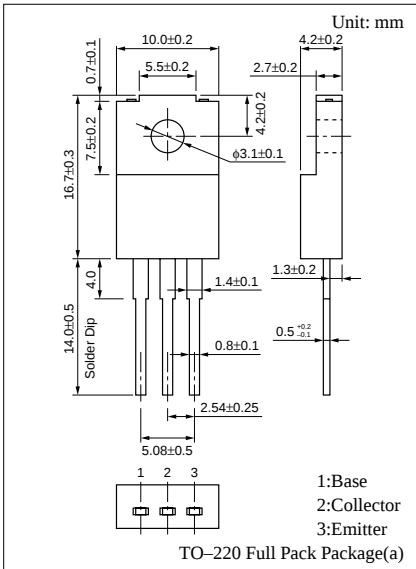
For midium speed power switching

■ Features

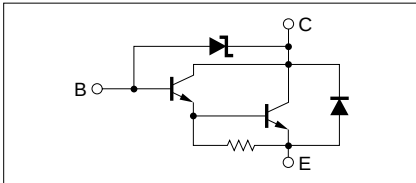
- Incorporating a zener diode of 30V zener voltage between collector and base
- Minimized variation in the breakdown voltage
- Large energy handling capability
- High-speed switching
- Full-pack package which can be installed to the heat sink with one screw

■ Absolute Maximum Ratings (T_C=25°C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V _{CBO}	30±5	V
Collector to emitter voltage	V _{CEO}	30±5	V
Emitter to base voltage	V _{EBO}	5	V
Peak collector current	I _{CP}	8	A
Collector current	I _C	4	A
Collector power dissipation	P _C	40	W
		2	
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-55 to +150	°C



Internal Connection



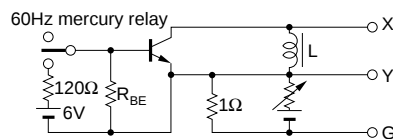
■ Electrical Characteristics (T_C=25°C)

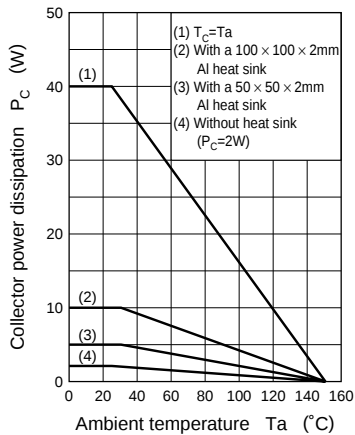
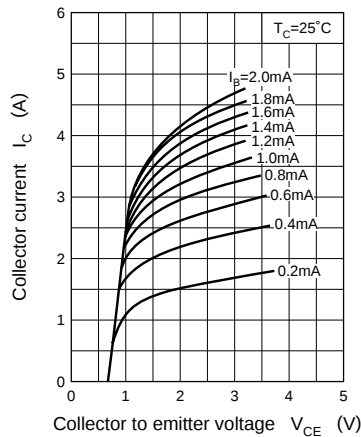
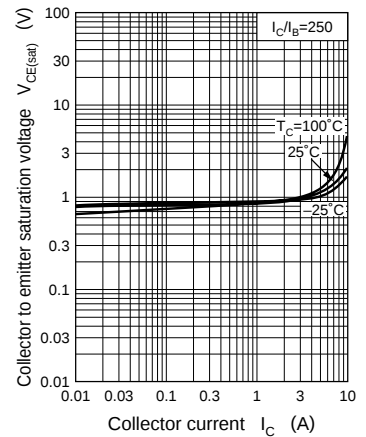
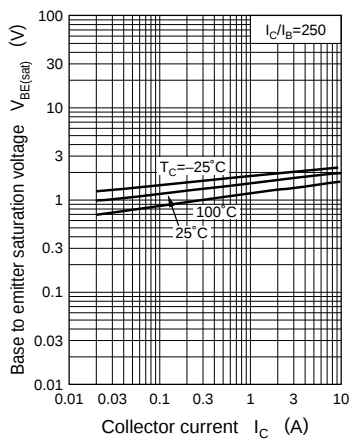
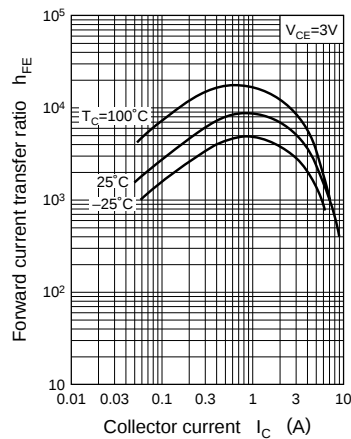
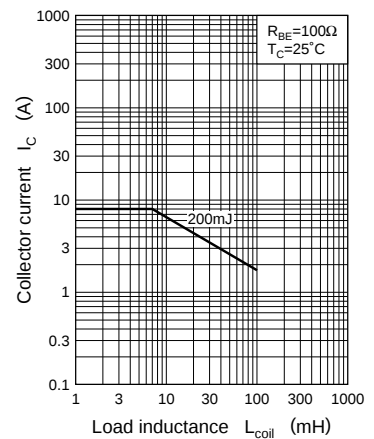
Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I _{CBO}	V _{CB} = 25V, I _E = 0			100	μA
Emitter cutoff current	I _{EBO}	V _{EB} = 5V, I _C = 0			2	mA
Collector to emitter voltage	V _{CEO}	I _C = 5mA, I _B = 0	25		35	V
Forward current transfer ratio	h _{FE1}	V _{CE} = 3V, I _C = 0.5A	1000			
	h _{FE2} *1	V _{CE} = 3V, I _C = 3A	2000		10000	
Collector to emitter saturation voltage	V _{CE(sat)}	I _C = 3A, I _B = 12mA			2.5	V
		I _C = 5A, I _B = 20mA			4	
Base to emitter saturation voltage	V _{BE(sat)}	I _C = 3A, I _B = 12mA			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 = 3A, I _{B1} = 12mA, I _{B2} = -12mA, V _{CC} = 20V		0.3		μs
Storage time	t _{stg}			3		μs
Fall time	t _f			1		μs
Energy handling capability	E _{s/b} *2	I _C = 2A, L = 100mH, R _{BE} = 100Ω	200			mJ

*1h_{FE2} Rank classification

Rank	Q	P
h _{FE2}	2000 to 5000	4000 to 10000

*2E_{s/b} Test circuit



$P_C - T_a$  $I_C - V_{CE}$  $V_{CE(\text{sat})} - I_C$  $V_{BE(\text{sat})} - I_C$  $h_{FE} - I_C$  $I_C - L_{\text{coil}}$ 

Area of safe operation (ASO)

