

2SD1318

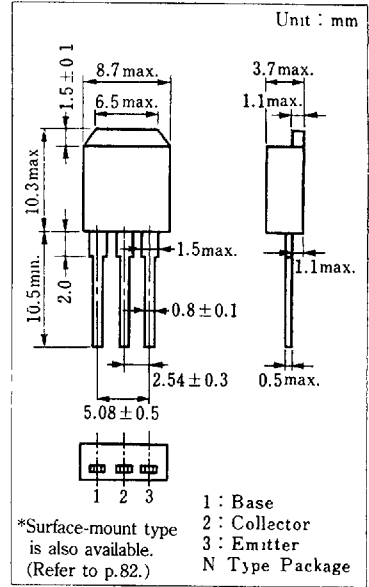
Silicon NPN Triple-Diffused Planar Darlingtone Type

Medium Speed Power Switching

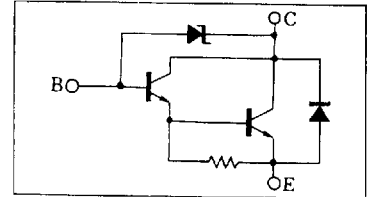
Features

- 30V Zener diode built-in between C and B
- Very small fluctuation in breakdown voltages
- Large energy handling capability
- High speed switching
- "N Type" package configuration with a cooling fin for direct soldering on PC board of a small-size electronic equipment

Package Dimensions



Inner Circuit



Absolute Maximum Ratings (Tc=25°C)

Item	Symbol	Value	Unit	
Collector-base voltage	V_{CB0}	30 ± 5	V	
Collector-emitter voltage	V_{CE0}	30 ± 5	V	
Emitter-base voltage	V_{EB0}	7	V	
Peak collector current	I_{CP}	12	A	
Collector current	I_C	8	A	
Collector power dissipation	P_C	$T_C = 25^\circ C$	45	W
		$T_a = 25^\circ C$	13	
Junction temperature	T_J	150	°C	
Storage temperature	T_{str}	-55 ~ +150	°C	

Electrical Characteristics (Tc=25°C)

Item	Symbol	Condition	min.	typ.	max.	Unit
Collector cutoff current	I_{CB0}	$V_{CB} = 25 V, I_C = 0$			100	μA
Emitter cutoff current	I_{EB0}	$V_{EB} = 25 V, I_F = 0$			2	mA
Collector-emitter voltage	V_{CE0}	$I_C = 5 mA, I_B = 0$	25		35	V
DC current gain	h_{FE1}^{*1}	$V_{CE} = 3 V, I_C = 4 A$	1000		10000	
		$V_{CE} = 3 V, I_C = 8 A$	500			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 4 A, I_B = 8 mA$			1.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 4 A, I_B = 8 mA$			2	V
Transition frequency	f_T	$V_{CE} = 10 V, I_C = 0.5 A, f = 1 MHz$		20		MHz
Turn-on time	t_{on}	$I_C = 4 A, I_{B1} = 8 mA, I_{B2} = -8 mA, V_{CC} = 20 V$		0.5		μs
Storage time	t_{stg}		4		μs	
Fall time	t_f		1		μs	
Energy handling capability	$E_{s/b}^{*2}$	$I_C = 2 A, L = 100 mH, R_{BF} = 100 \Omega$	200			mJ

*1 h_{FE1} Classifications

Class	R	Q	P
h_{FE1}	1000 ~ 2500	2000 ~ 5000	4000 ~ 10000

*2 E, b Test method

