

2SD1980F5

Transistor, NPN, Darlington pair

Features

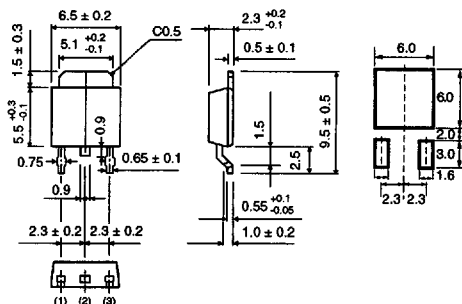
- available in CPT F5 (SC-63) package
- package marking: D1980★□, where ★ is h_{FE} code and □ is lot number
- Darlington connection provides high DC current gain (h_{FE})
- damper diode is incorporated
- built-in resistors between base and emitter

Applications

- motor drive
- relay drive

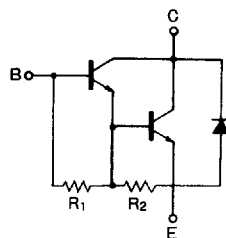
Dimensions (Units : mm)

2SD1980 (CPT F5)



- (1) Base
(2) Collector
(3) Emitter

Equivalent circuit



- $R_1 \approx 3.5k\Omega$
 $R_2 \approx 300\Omega$
 B : Base
 C : Collector
 E : Emitter

2SD1980F5 Transistor, NPN, 2SD series**Absolute maximum ratings ($T_a = 25^\circ\text{C}$)**

Parameter	Symbol	Limits	Unit	Conditions
Collector-to-base voltage	V_{CB0}	100	V	
Collector-to-emitter voltage	V_{CEO}	100	V	
Emitter-to-base voltage	V_{EBO}	6	V	
Collector current	I_C	2	A	DC
		3		Single pulse, $P_W = 100$ ms
Collector dissipation	P_C	1	W	$T_a = 25^\circ\text{C}$
		10	W	$T_C = 25^\circ\text{C}$
Junction temperature	T_j	150	$^\circ\text{C}$	
Storage temperature	T_{stg}	$-55 \sim +150$	$^\circ\text{C}$	

Electrical characteristics (unless otherwise noted, $T_a = 25^\circ\text{C}$)

Parameter	Symbol	Min	Typical	Max	Unit	Conditions
Collector-to-base breakdown voltage	BV_{CB0}	100			V	$I_C = 50 \mu\text{A}$
Collector-to-emitter breakdown voltage	BV_{CEO}	100			V	$I_C = 5$ mA
Collector cutoff current	I_{CB0}			10	μA	$V_{CB} = 100$ V
Emitter cutoff current	I_{EBO}			3	mA	$V_{EB} = 5$ V
DC current gain	h_{FE}	1000		10000		$V_{CE} = 2$ V, $I_C = 1$ A, single pulse
Collector-to-emitter saturation voltage	$V_{CE(sat)}$			1.5	V	$I_C/I_B = 1$ A/1 mA, single pulse
Output capacitance	C_{ob}		25		pF	$V_{CB} = 10$ V, $I_E = 0$ A, $f = 1$ MHz

Electrical characteristic curves

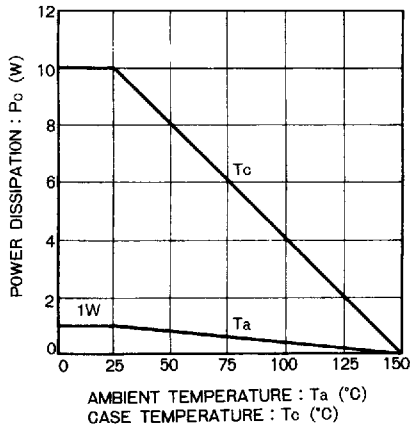


Figure 1

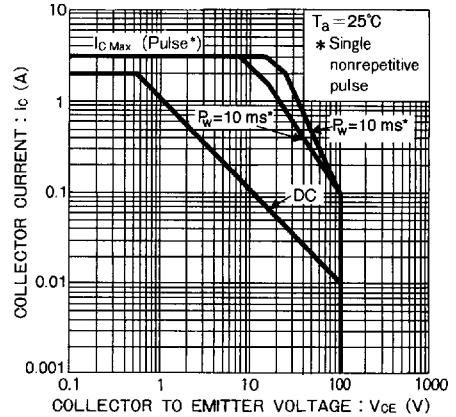


Figure 2

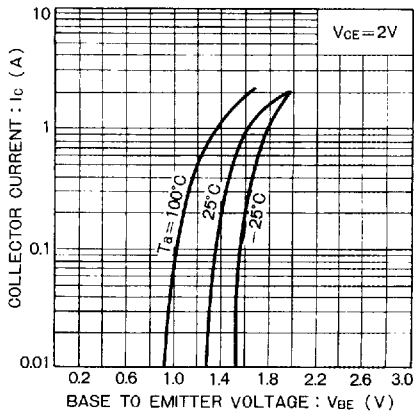


Figure 3

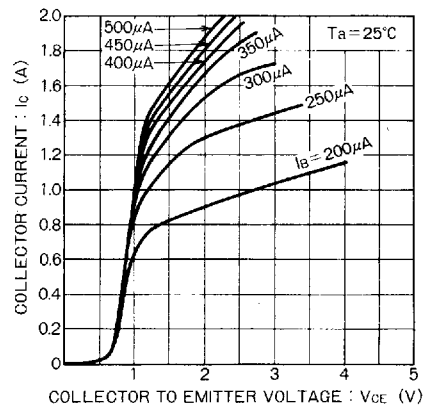


Figure 4

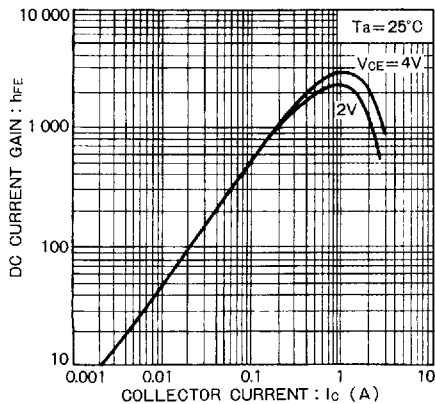


Figure 5

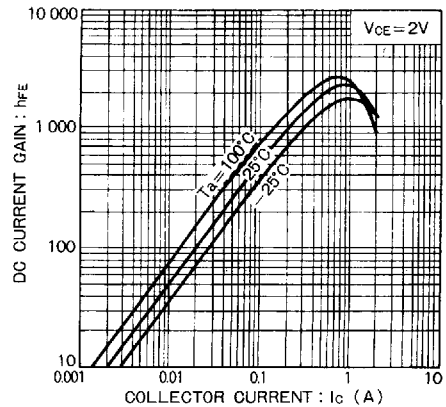


Figure 6

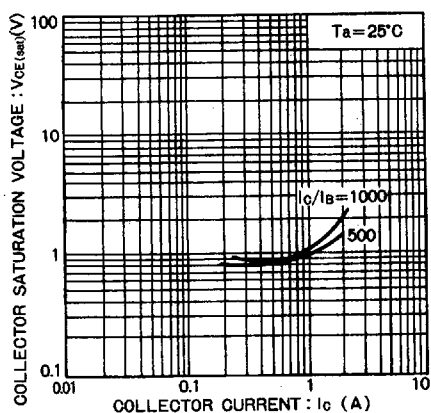


Figure 7

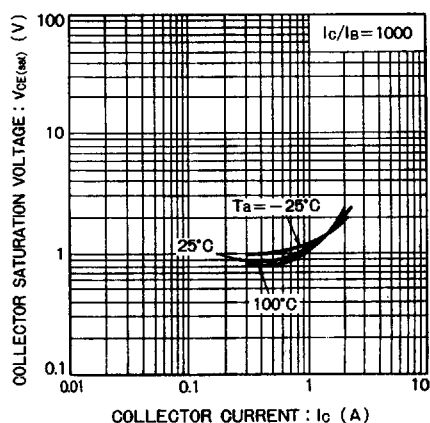


Figure 8

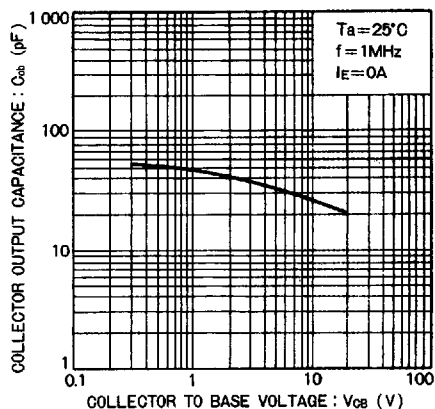


Figure 9

Ordering information

Package	Tape
Code	TL
Basic order quantity	2500
2SD1980F5, $h_{FE} = 1k \sim 10k$	☆
★ = Standard, ☆ = Semi-standard, * = Special order	