2SD2010 Transistor, NPN, Darlington

Features

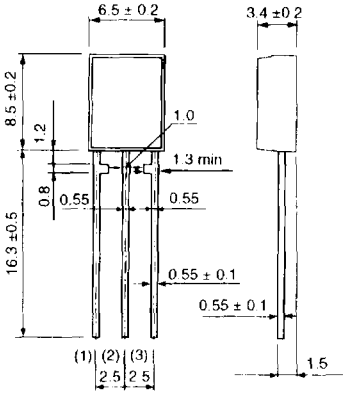
- available in MRT package
- built-in 60 V Zener diode between collector and base
- resistant to surges
- damper diode incorporated
- built-in resistors between base and emitter

Applications

- low frequency power amplifier

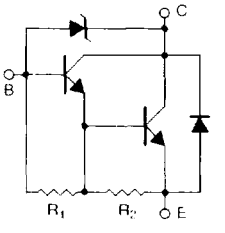
Dimensions (Units : mm)

2SD2010 (MRT)



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

Equivalent circuit



$R_1 \cong 3.5\ k\Omega$
$R_2 \cong 300\ \Omega$

B: Base
C: Collector
E: Emitter

Absolute maximum ratings (T_a = 25°C)

Parameter	Symbol	Limits	Unit	Conditions
Collector-to-base voltage	V_{CBO}	60 ± 10	V	
Collector-to-emitter voltage	V_{CEO}	60 ± 10	V	
Emitter-to-base voltage	V_{EBO}	6	V	
Collector current	I_C	2	A	Continuous (dc)
		3	A	Single pulse, P_W = 100 ms
Collector dissipation	P_C	1.2	W	
Junction temperature	T_j	150	°C	
Storage temperature	T_{stg}	−55 ~ +150	°C	

Electrical characteristics (unless otherwise noted, T_a = 25°C)

Parameter	Symbol	Min	Typical	Max	Unit	Conditions
Collector-to-base breakdown voltage	BV_{CBO}	50		70	V	I_C = 50 µA
Collector-to-emitter breakdown voltage	BV_{CEO}	50		70	V	I_C = 5 mA
Collector cutoff current	I_{CBO}			10	µA	V_{CB} = 40 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

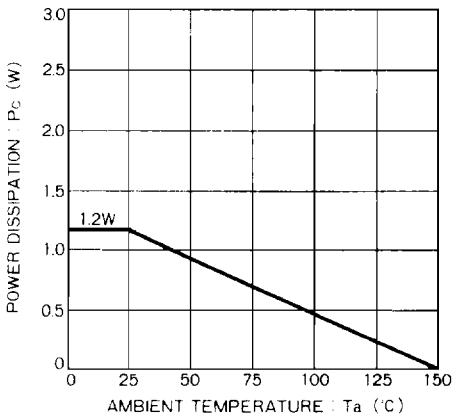


Figure 1

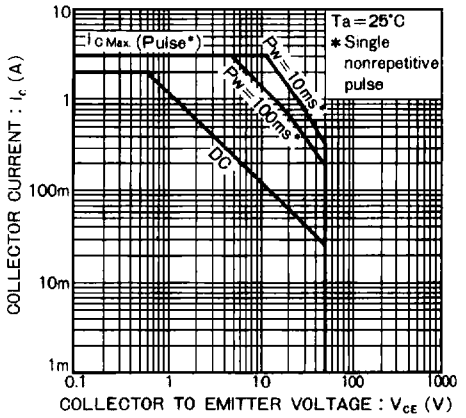


Figure 2

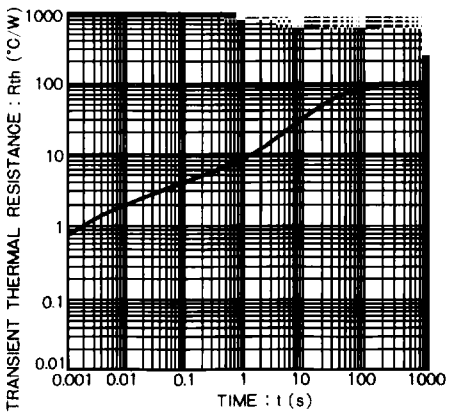


Figure 3

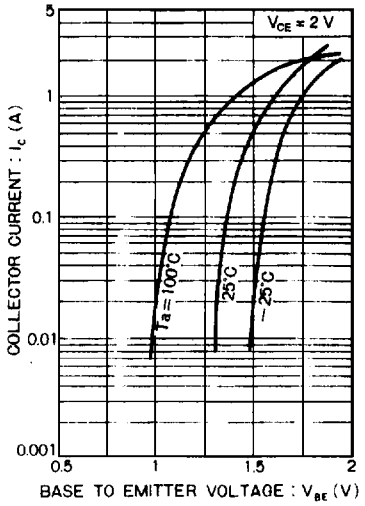


Figure 4

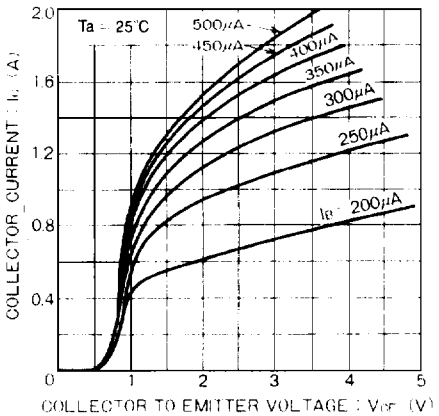


Figure 5

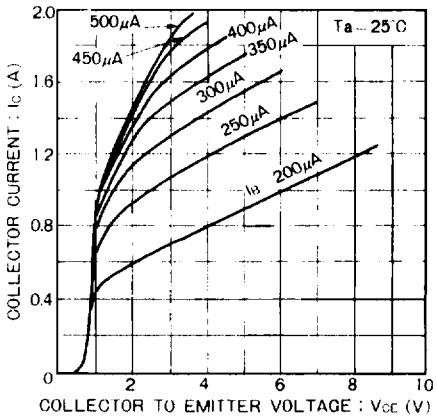


Figure 6

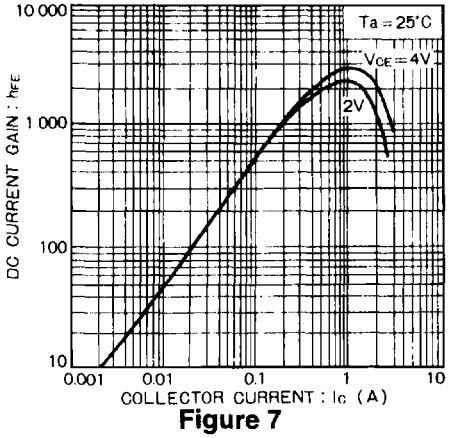


Figure 7

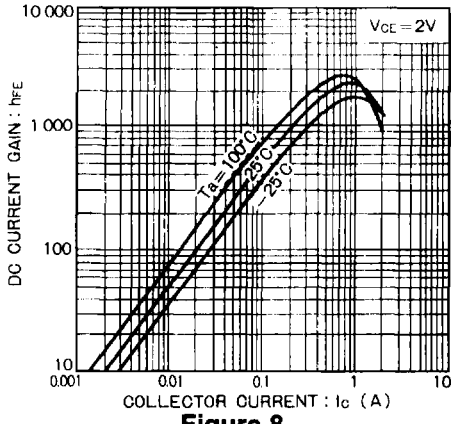


Figure 8

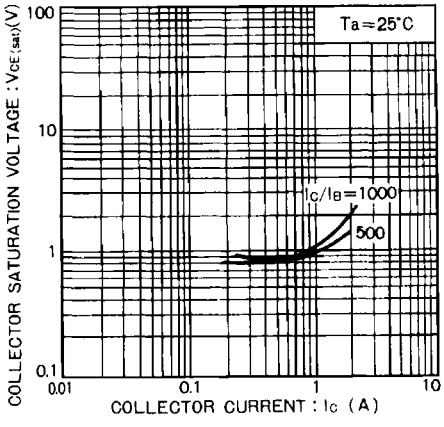


Figure 9

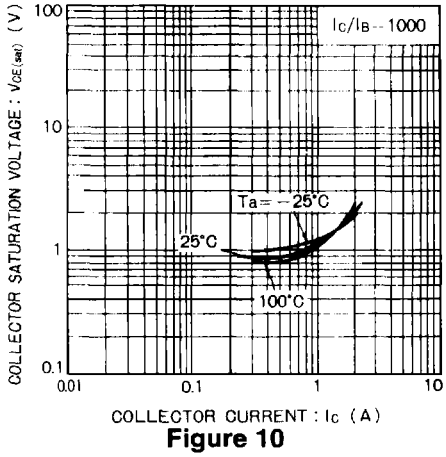


Figure 10

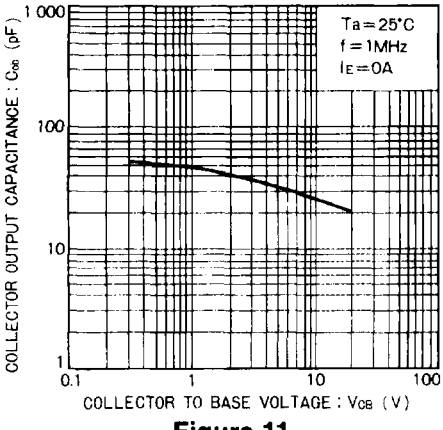


Figure 11

Ordering information

Package	Tape
Code	T105
Basic order quantity	2 000
2SD2010, h_{FE} = 1 k ~ 10 k	★
★ = Standard, ☆ = Semi-standard, ✳ = Special order	