

Features

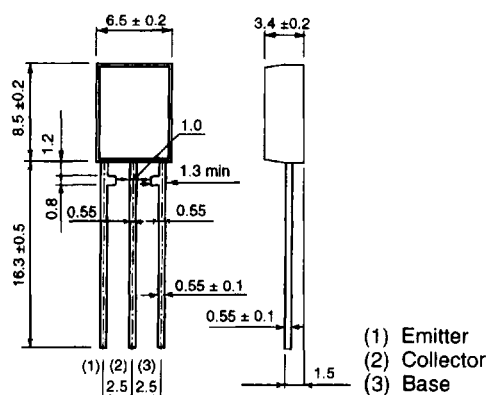
- available in MRT package
- high collector power dissipation:
 $P_C = 1.2 \text{ W}$
- suitable for use at low voltage because transistor has a low saturation voltage, typically
 $V_{CE(sat)} = 0.15 \text{ V}$ at
 $I_C/I_B = 500 \text{ mA}/50 \text{ mA}$
- complementary pair with 2SB1329

Applications

- medium power amplifier

Dimensions (Units : mm)

2SD2005 (MRT)



Absolute maximum ratings (T_a = 25°C)

Parameter	Symbol	Limits	Unit	Conditions
Collector-to-base voltage	V_{CBO}	40	V	
Collector-to-emitter voltage	V_{CEO}	32	V	
Emitter-to-base voltage	V_{EBO}	5	V	
Collector current	I_C	1	A	Continuous (dc)
		2	A	$P_W = 20 \text{ ms}$, duty = 50%
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, $T_a = 25^\circ\text{C}$)

Parameter	Symbol	Min	Typical	Max	Unit	Conditions
Collector-to-base breakdown voltage	BV_{CBO}	40			V	$I_C = 50\ \mu\text{A}$
Collector-to-emitter breakdown voltage	BV_{CEO}	32			V	$I_C = 1\ \text{mA}$
Emitter-to-base breakdown voltage	BV_{EBO}	5			V	$I_E = 50\ \mu\text{A}$
Collector cutoff current	I_{CBO}			0.5	μA	$V_{CB} = 20\ \text{V}$
Emitter cutoff current	I_{EBO}			0.5	μA	$V_{EB} = 4\ \text{V}$
DC current gain	h_{FE}	82		390		$V_{CE} = 3\ \text{V}$, $I_C = 100\ \text{mA}$
Collector-to-emitter saturation voltage	$V_{CE(sat)}$		0.15	0.4	V	$I_C/I_B = 500\ \text{mA}/50\ \text{mA}$
Transition frequency	f_T	50	150		MHz	$V_{CE} = 5\ \text{V}$, $I_E = -50\ \text{mA}$, $f = 100\ \text{MHz}$
Output capacitance	C_{ob}		15	30	pF	$V_{CB} = 10\ \text{V}$, $I_E = 0\ \text{A}$, $f = 1\ \text{MHz}$

h_{FE} rankings

Item	P	Q	R
h_{FE}	82 ~ 180	120 ~ 270	180 ~ 390

Electrical characteristic curves

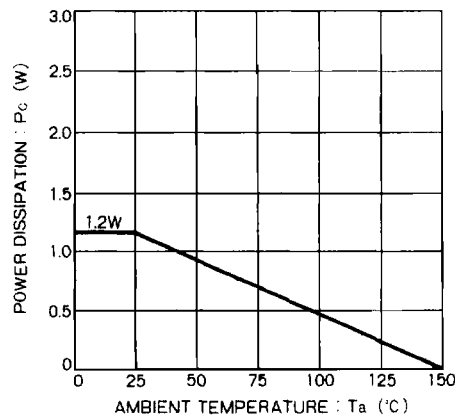


Figure 1

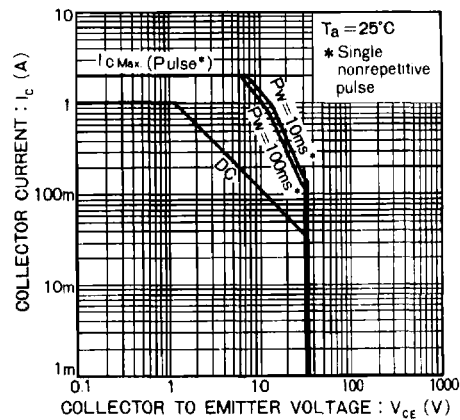


Figure 2

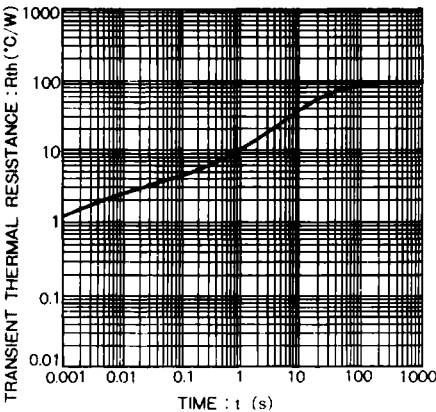


Figure 3

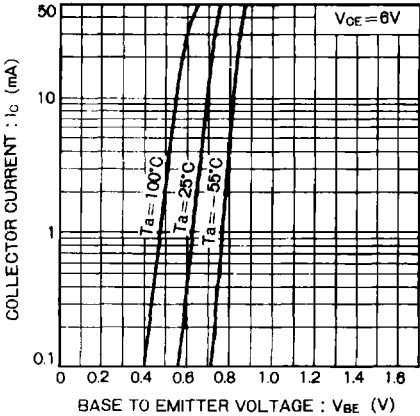


Figure 4

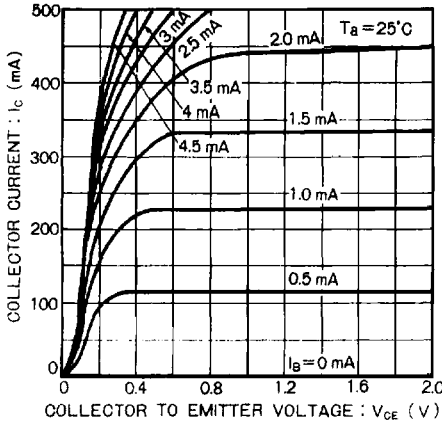


Figure 5

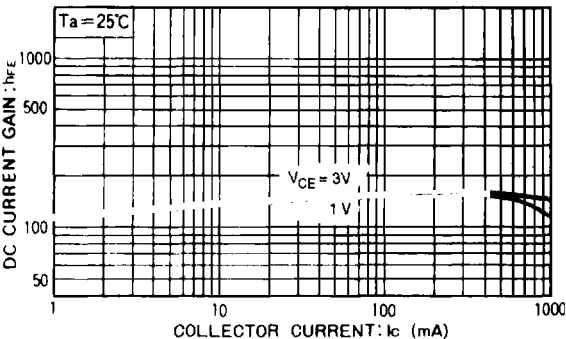


Figure 6

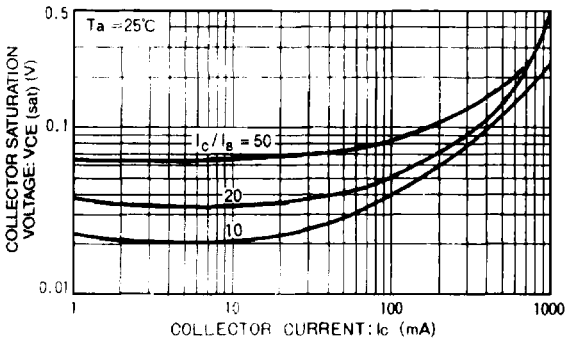


Figure 7

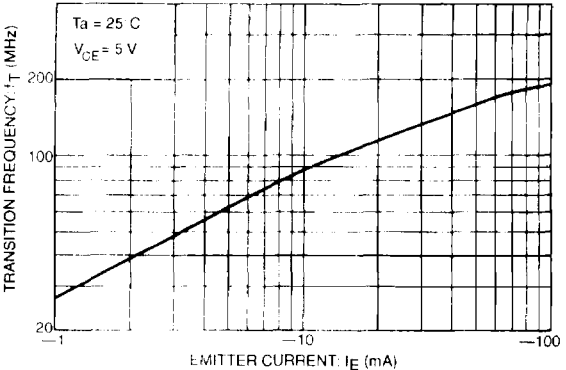


Figure 8

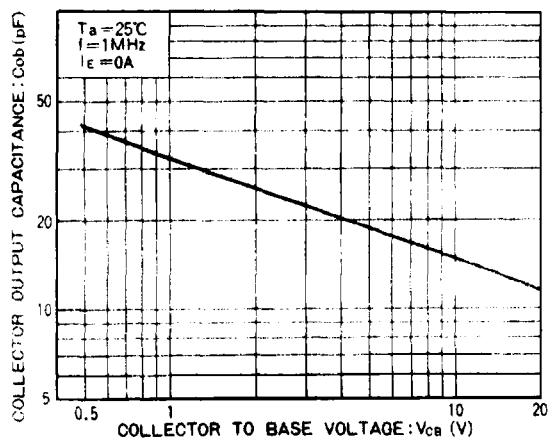


Figure 9

Ordering information

Package	Tape
Code	T105
Basic order quantity	2 000
2SD2005	★
★ = Standard, ☆ = Semi-standard, * = Special order	