

2SD2146

Transistor, NPN

Features

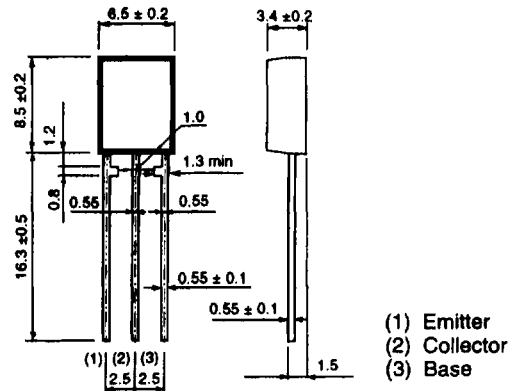
- available in MRT package
- low collector saturation voltage, typically $V_{EC(sat)} = 0.5\text{ V}$ at $I_C/I_B = 2\text{ A}/0.2\text{ A}$
- wide safe operating area (SOA)
- complementary pair with 2SB1517

Applications

- low frequency power amplifier

Dimensions (Units : mm)

2SD2146 (MRT)



Absolute maximum ratings ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Limits	Unit	Conditions
Collector-to-base voltage	V_{CBO}	60	V	
Collector-to-emitter voltage	V_{CEO}	50	V	
Emitter-to-base voltage	V_{EBO}	5	V	
Collector current	I_C	3	A	Continuous (dc)
		4.5	A	Single pulse, $P_W = 100\text{ ms}$
Collector dissipation	P_C	1.2	W	
Junction temperature	T_j	150	$^\circ\text{C}$	
Storage temperature	T_{stg}	-55 ~ +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_{CBO}	60			V	$I_C = 50 \mu\text{A}$
Collector-to-emitter breakdown voltage	BV_{CEO}	50			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}			1.0	μA	$V_{CB} = 40 \text{ V}$
Emitter cutoff current	I_{EBO}			1.0	μA	$V_{EB} = 4 \text{ V}$
DC current gain	h_{FE}	56		390		$V_{CE} = 3 \text{ V}$, $I_C = 0.5 \text{ A}$, single pulse
Collector-to-emitter saturation voltage	$V_{CE(sat)}$			1.0	V	$I_C/I_B = 2 \text{ A}/0.2 \text{ A}$, single pulse
Base-to-emitter saturation voltage	$V_{BE(sat)}$			1.5	V	$I_C/I_B = 2 \text{ A}/0.2 \text{ A}$, single pulse
Transition frequency	f_T		90		MHz	$V_{CE} = 5 \text{ V}$, $I_E = -0.5 \text{ A}$, $f = 30 \text{ MHz}$, single pulse
Output capacitance	C_{ob}		40		pF	$V_{CB} = 10 \text{ V}$, $I_E = 0 \text{ A}$, $f = 1 \text{ MHz}$

h_{FE} rankings

Item	N	P	Q	R
h_{FE}	56 ~ 120	82 ~ 180	120 ~ 270	180 ~ 390

Electrical characteristic curves

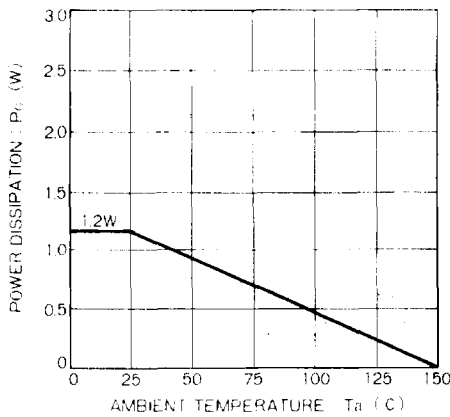


Figure 1

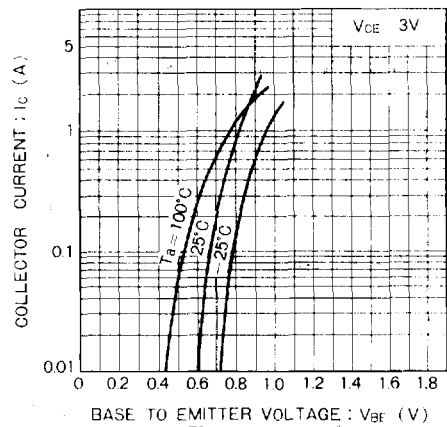


Figure 2

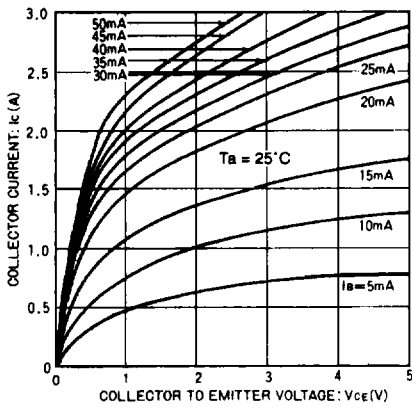


Figure 3

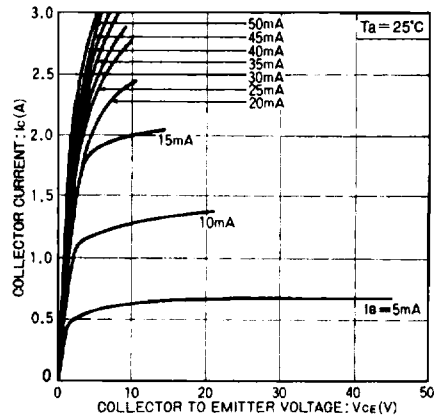


Figure 4

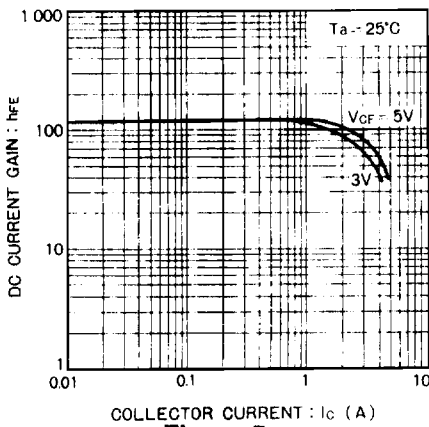


Figure 5

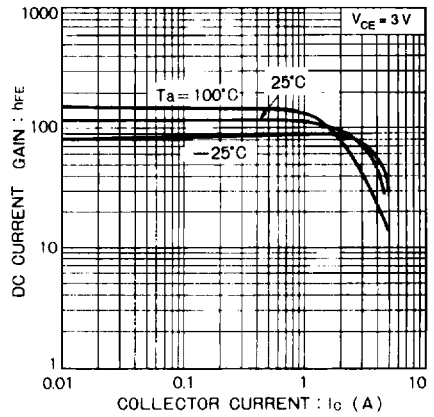


Figure 6

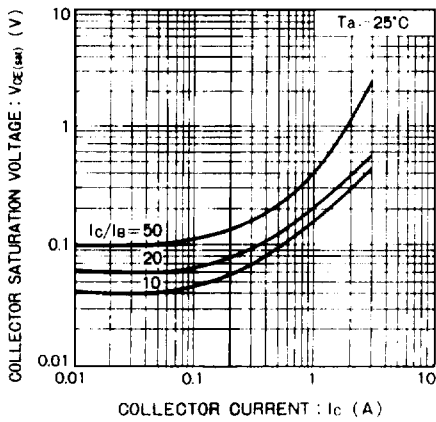


Figure 7

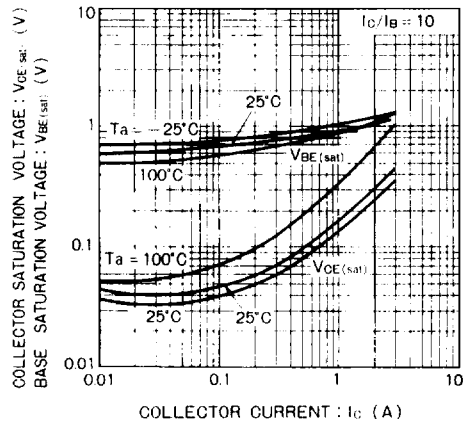


Figure 8

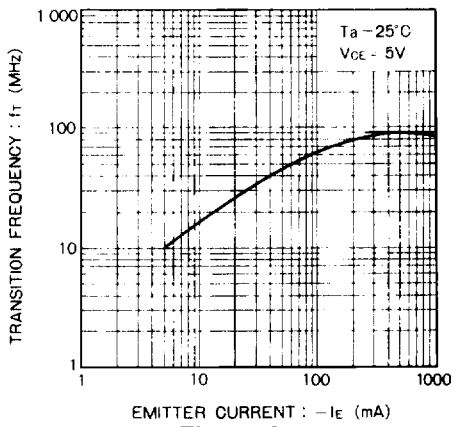


Figure 9

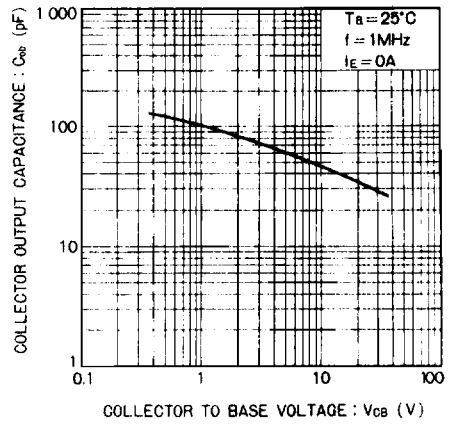


Figure 10

Ordering information

Package	Tape
Code	T105
Basic order quantity	2 000
2SD2146	★
★ = Standard, ☆ = Semi-standard, * = Special order	