2SC4505

Transistor, NPN

Features

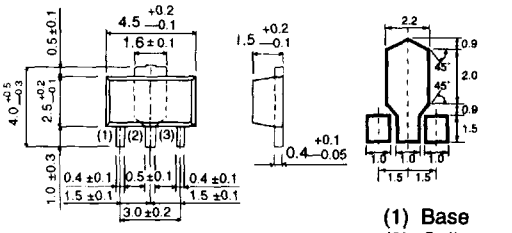
- available in MPT3 (MPT3, SOT-89, SC-62) package
- package marking: 2SC4505; CE★, where ★ is h_{FE} code
- high voltage $BV_{CEO} = 400$ V
- low collector saturation voltage, typically $V_{CE(sat)} = 0.05$ V for $I_C/I_B = 10$ mA/1 mA
- high speed switching time, typically $t_f = 1.7$ µs for $I_C = 100$ mA

Applications

- low frequency power amplifier

Dimensions (Units : mm)

2SC4505 (MPT3)



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

Absolute maximum ratings (T_a = 25°C)

Parameter	Symbol	Limits	Unit	Conditions
Collector-to-base voltage	V_{CBO}	400	V	
Collector-to-emitter voltage	V_{CEO}	400	V	
Emitter-to-base voltage	V_{EBO}	7	V	
Collector current	I_C	0.1	A	DC
	I_{CP}	0.2		P_W = 20 ms, duty = 50%
Collector dissipation	P_C	0.5	W	
		2.0		Mounted on 40 × 40 × 0.7 mm ceramic substrate
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}	400			V	I_C = 50 µA
Collector-to-emitter breakdown voltage	BV_{CEO}	400			V	I_C = 1 mA
Emitter-to-base breakdown voltage	BV_{EBO}	7			V	I_E = 50 µA
Collector cutoff current	I_{CBO}			10	µA	V_{CB} = 400 V
Emitter cutoff current	I_{EBO}			10	µA	V_{EB} = 6 V
DC current gain	h_{FE}	56	120	270		V_{CE} = 10 V, I_C = 10 mA
Collector-to-emitter saturation voltage	$V_{CE(sat)}$			0.5	V	I_C/I_B = 10 mA/1 mA
Base-to-emitter saturation voltage	$V_{BE(sat)}$			1.5	V	I_C/I_B = 10 mA/1 mA
Transition frequency	f_T		20		MHz	V_{CE} = 10 V, I_E = 10 mA, f = 10 MHz
Output capacitance	C_{ob}		7		pF	V_{CB} = 10 V, I_E = 0 A, f = 1 MHz
Turn on time	t_{on}		1.0		µs	I_C = 100 mA, I_{B1} = – I_{B2} = 10 mA, V_{CC} ≅ 150 V See test circuit
Storage time	t_{stg}		5.5		µs	
Fall time	t_f		1.7		µs	

h_{FE} rankings

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

Test circuits

Figure 1 Switching time test circuit

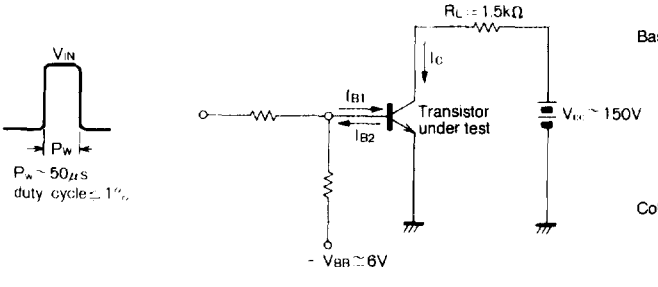
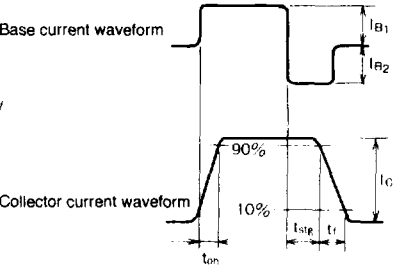


Figure 2 Switching time waveforms



Electrical characteristic curves

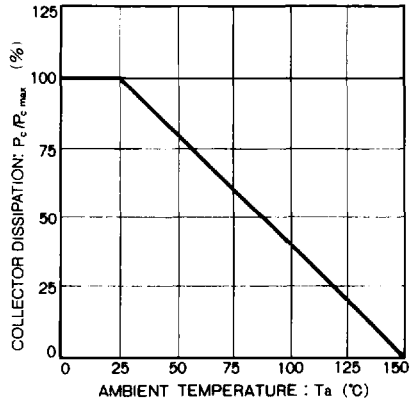


Figure 3

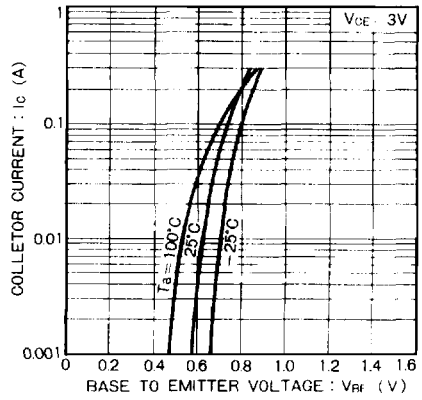


Figure 4

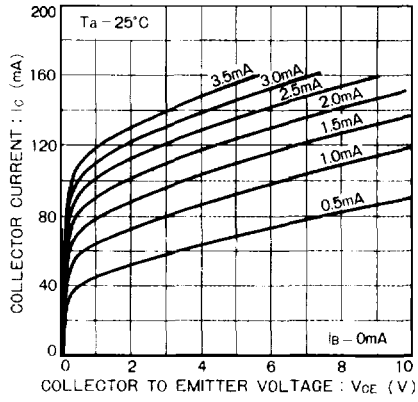


Figure 5

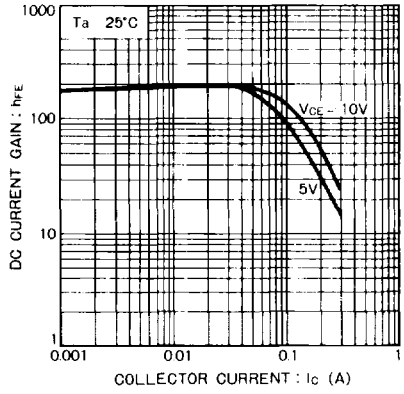


Figure 6

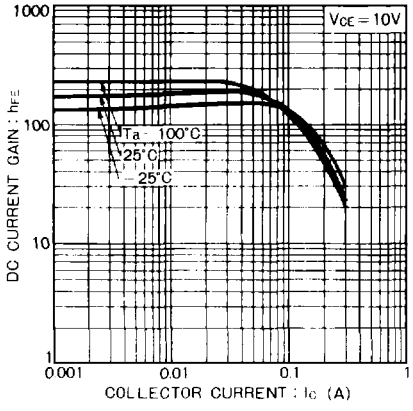


Figure 7

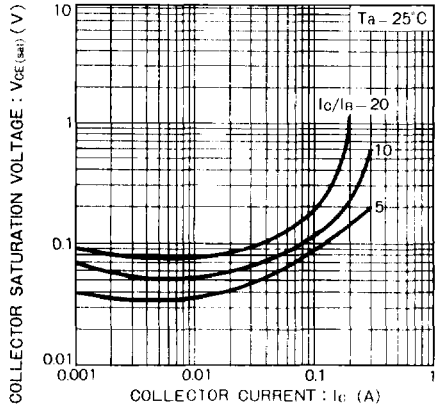


Figure 8

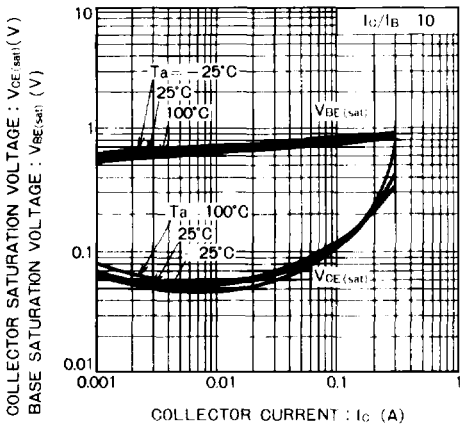


Figure 9

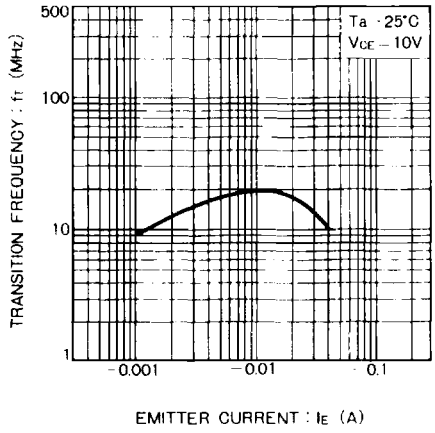


Figure 10

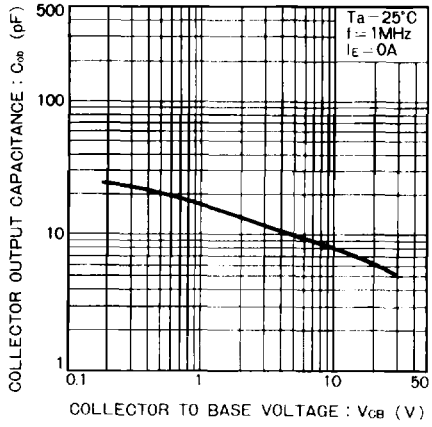


Figure 11

Ordering information

Package	Tape	
Code	T100	T200
Basic order quantity	1000	4000
2SC4505	★	★
★ = Standard, ☆ = Semi-standard, ✳ = Special order		