

2SC4505

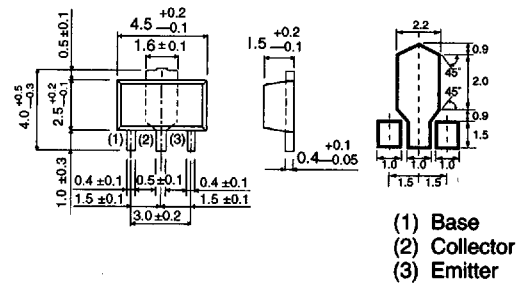
Transistor, NPN

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 $t_f = 1.7$ μ s for $I_C = 100$ mA

Dimensions (Units : mm)

2SC4505 (MPT3)



Applications

- low frequency power amplifier

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

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	Mounted on $40 \times 40 \times 0.7$ mm ceramic substrate
		2.0		
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}	400			V	$I_C = 50 \mu\text{A}$
Collector-to-emitter breakdown voltage	BV_{CEO}	400			V	$I_C = 1 \text{ mA}$
Emitter-to-base breakdown voltage	BV_{EBO}	7			V	$I_E = 50 \mu\text{A}$
Collector cutoff current	I_{CBO}			10	μA	$V_{CB} = 400 \text{ V}$
Emitter cutoff current	I_{EBO}			10	μA	$V_{EB} = 6 \text{ V}$
DC current gain	h_{FE}	56	120	270		$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}$
Collector-to-emitter saturation voltage	$V_{CE(sat)}$			0.5	V	$I_C/I_B = 10 \text{ mA}/1 \text{ mA}$
Base-to-emitter saturation voltage	$V_{BE(sat)}$			1.5	V	$I_C/I_B = 10 \text{ mA}/1 \text{ mA}$
Transition frequency	f_T		20		MHz	$V_{CE} = 10 \text{ V}, I_E = 10 \text{ mA}, f = 10 \text{ MHz}$
Output capacitance	C_{ob}		7		pF	$V_{CB} = 10 \text{ V}, I_E = 0 \text{ A}, f = 1 \text{ MHz}$
Turn on time	t_{on}		1.0		μs	$I_C = 100 \text{ mA}, I_{B1} = -I_{B2} = 10 \text{ mA}, V_{CC} \approx 150 \text{ V}$ 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

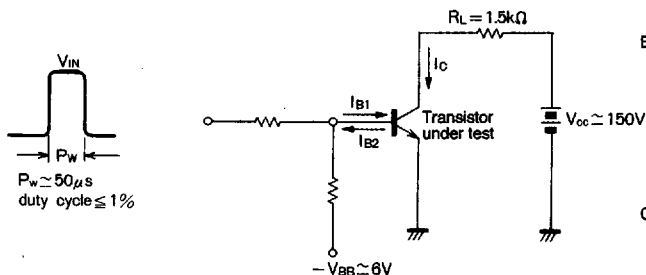
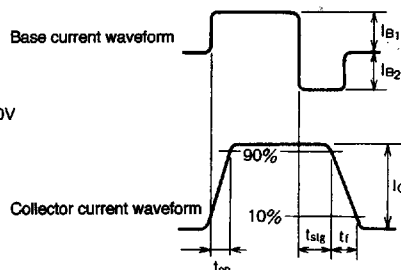


Figure 2 Switching time waveforms



Electrical characteristic curves

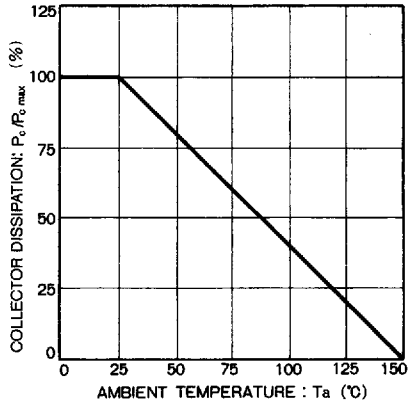


Figure 3

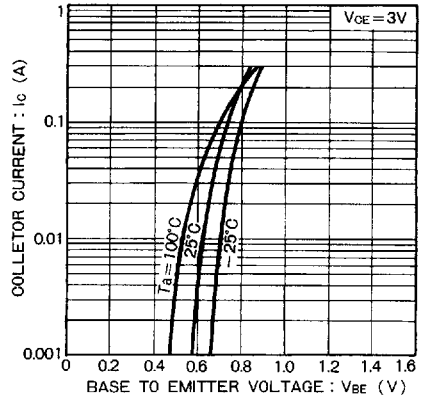


Figure 4

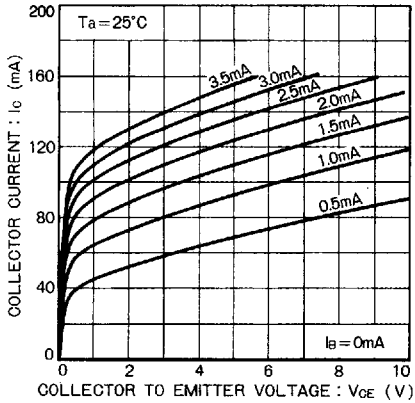


Figure 5

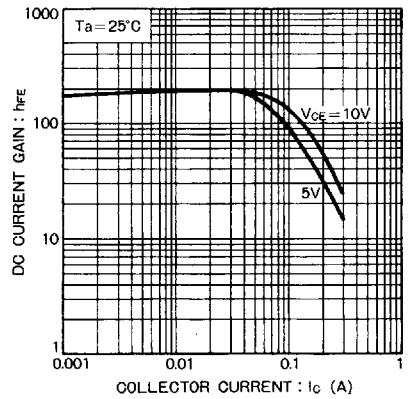


Figure 6

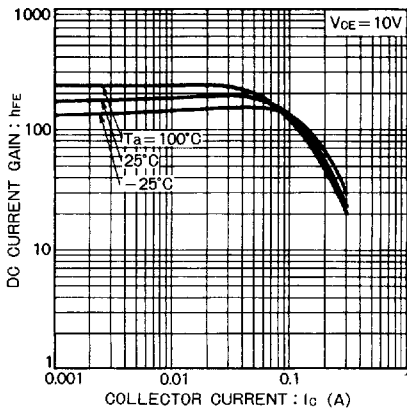


Figure 7

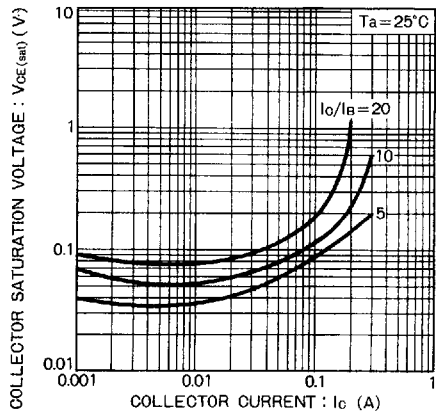


Figure 8

2SC4505 Transistor, NPN, 2SC Series

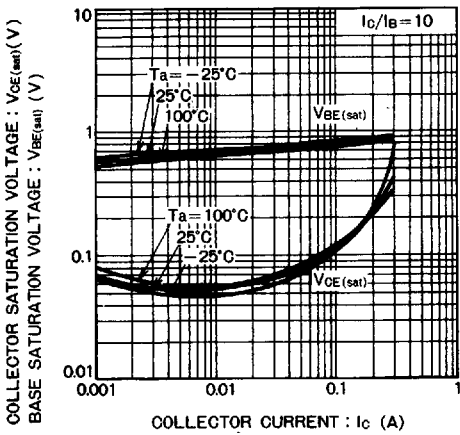


Figure 9

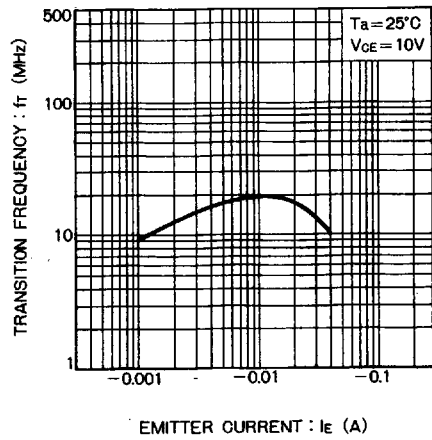


Figure 10

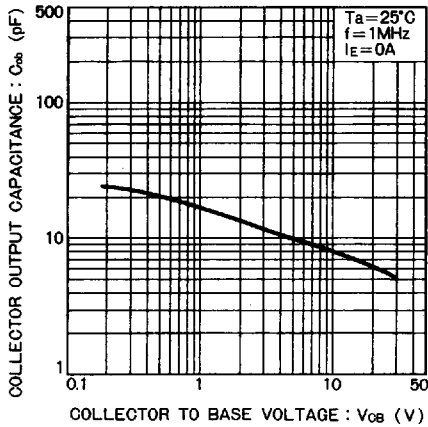


Figure 11

Ordering information

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