

2SD2114K

Transistor, NPN

Features

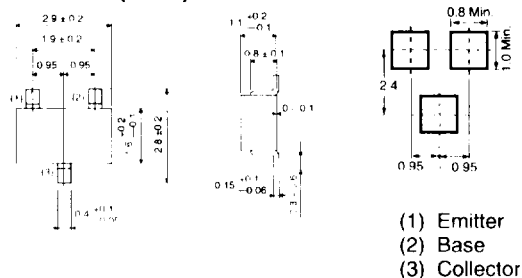
- available in SMT3 (SMT, SC-59) package
- package marking: 2SD2114K; BB★, where ★ is h_{FE} code
- high DC current amplification, typically $h_{FE} = 1200$
- high emitter-base voltage, $V_{EBO} = 12\text{ V}$ (min)
- low collector saturation voltage, typically $V_{CE(sat)} = 0.18$ for $I_C/I_B = 500\text{ mA}/20\text{ mA}$

Applications

- medium power amplifier

Dimensions (Units : mm)

2SD2114K (SMT3)



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

Parameter	Symbol	Limits	Unit	Conditions
Collector-to-base voltage	V_{CBO}	25	V	
Collector-to-emitter voltage	V_{CEO}	20	V	
Emitter-to-base voltage	V_{EBO}	12	V	
Collector current	I_C	500	mA	DC
		1 000		Single pulse, $P_w = 10\text{ ms}$
Collector dissipation	P_C	200	mW	
Junction temperature	T_j	150	$^\circ\text{C}$	
Storage temperature	T_{stg}	-55 -- +150	$^\circ\text{C}$	

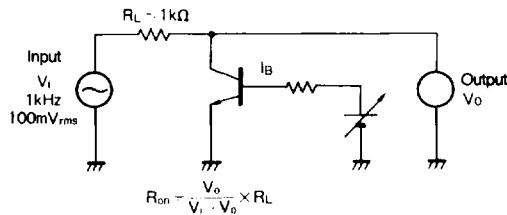
Electrical characteristics (unless otherwise noted, $T_a = 25^\circ\text{C}$)

Parameter	Symbol	Min	Typical	Max	Unit	Conditions
Collector-to-base breakdown voltage	BV_{CBO}	25			V	$I_C = 10 \mu\text{A}$
Collector-to-emitter breakdown voltage	BV_{CEO}	20			V	$I_C = 1 \text{ mA}$
Emitter-to-base breakdown voltage	BV_{EBO}	12			V	$I_E = 10 \mu\text{A}$
Collector cutoff current	I_{CBO}			0.5	μA	$V_{CB} = 20 \text{ V}$
Emitter cutoff current	I_{EBO}			0.5	μA	$V_{EB} = 10 \text{ V}$
DC current gain	h_{FE}	560		2700		$V_{CE} = 3 \text{ V}, I_C = 10 \text{ mA}$
Collector-to-emitter saturation voltage	$V_{CE(sat)}$		0.18	0.4	V	$I_C/I_B = 500 \text{ mA}/20 \text{ mA}$
Transition frequency	f_T		350		MHz	$V_{CE} = 10 \text{ V}, I_E = -50 \text{ mA}, f = 100 \text{ MHz}$
Output capacitance	C_{ob}		8.0		pF	$V_{CB} = 10 \text{ V}, I_E = 0 \text{ A}, f = 1 \text{ MHz}$
Output on resistance	R_{on}		0.8		Ω	$I_B = 1 \text{ mA}, v_i = 100 \text{ mV}_{rms}, f = 1 \text{ kHz}$

h_{FE} rankings

Item	U	V	W
h_{FE}	560 ~ 1200	820 ~ 1800	1200 ~ 2700

R_{on} measurement circuit diagram



2SD2114K Transistor, NPN, 2SD series

Electrical characteristic curves

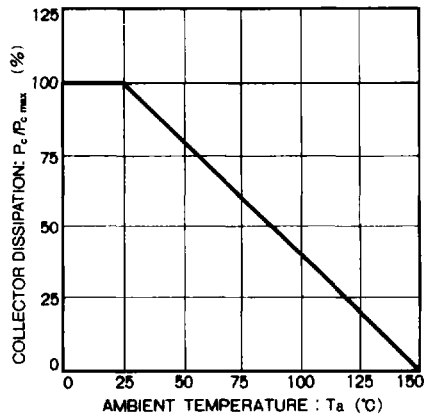


Figure 1

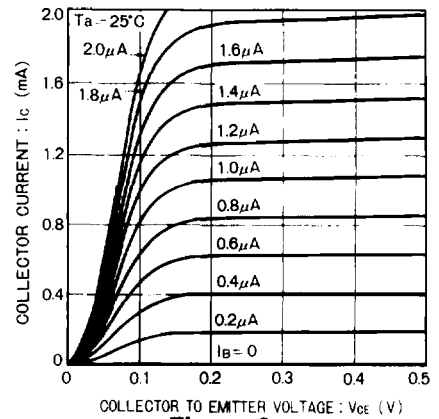


Figure 2

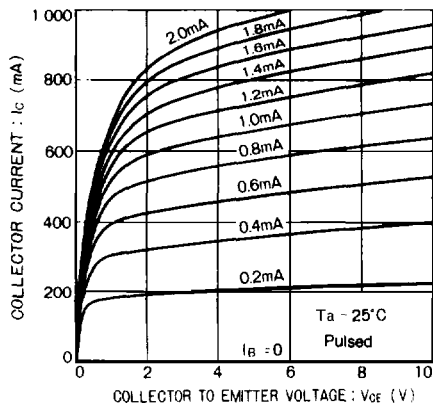


Figure 3

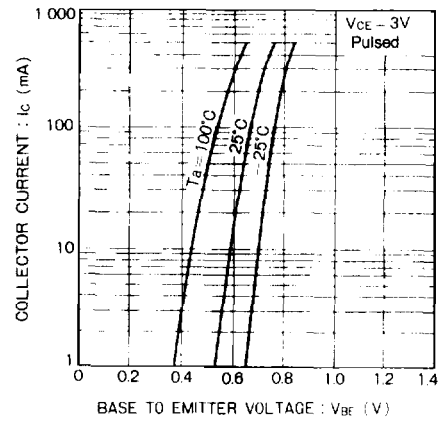


Figure 4

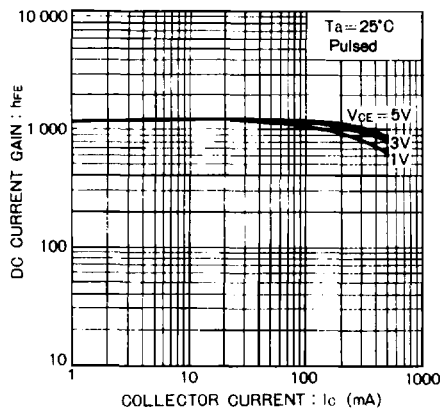


Figure 5

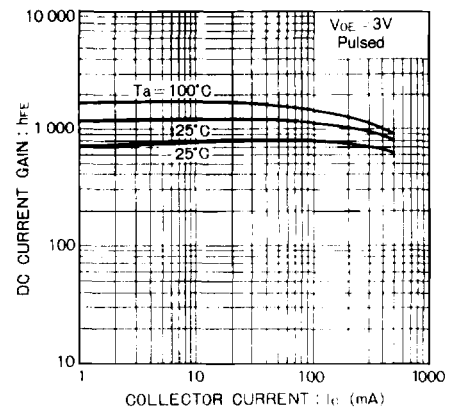


Figure 6

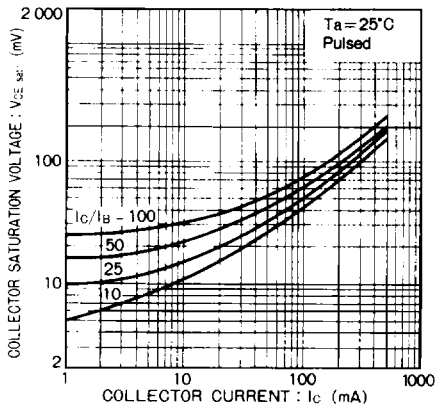


Figure 7

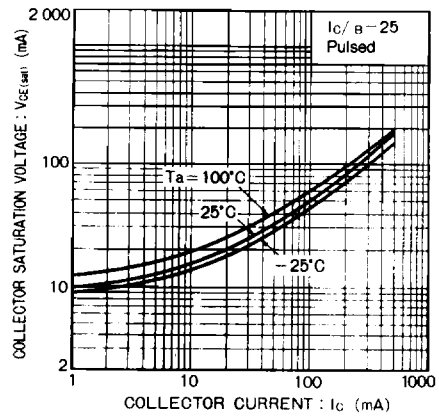


Figure 8

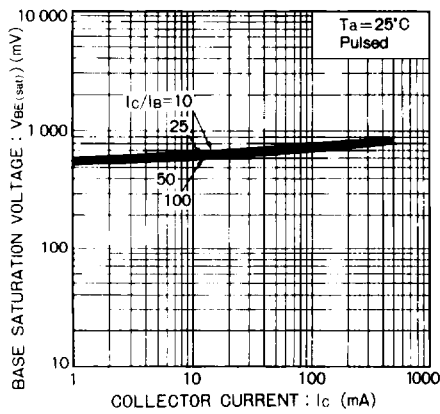


Figure 9

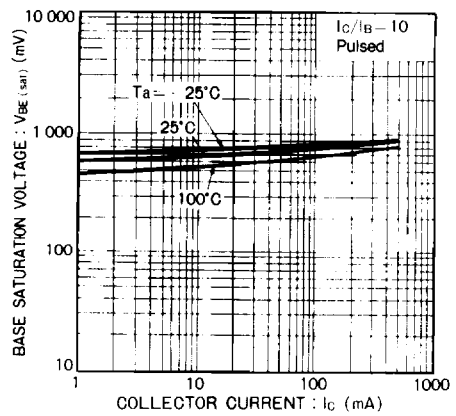


Figure 10

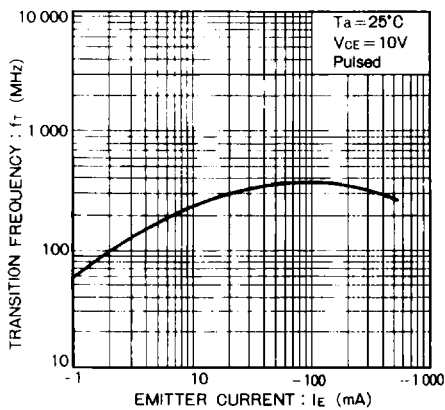


Figure 11

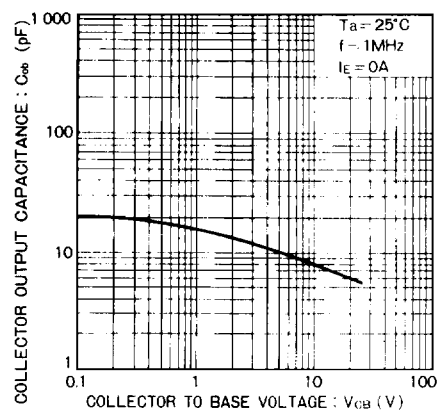


Figure 12

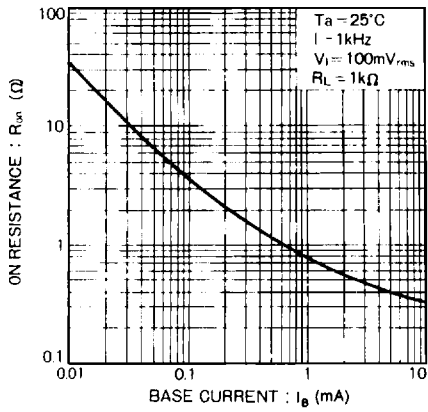


Figure 13