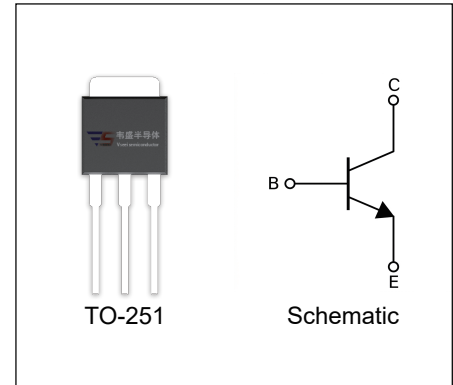


13003 TRANSISTOR (NPN)

FEATURES

- Power Switching Applications



MAXIMUM RATINGS($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	700	V
V_{CEO}	Collector-Emitter Voltage	400	V
V_{EBO}	Emitter-Base Voltage	9	V
I_C	Collector Current -Continuous	1.5	A
P_c	Collector Dissipation	1.25	W
T_J, T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 1\text{mA}, I_E = 0$	700			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}, I_B = 0$	400			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 1\text{mA}, I_C = 0$	9			V
Collector cut-off current	I_{CBO}	$V_{CB} = 700\text{V}, I_E = 0$			1	mA
Collector cut-off current	I_{CEO}	$V_{CE} = 400\text{V}, I_B = 0$			0.5	mA
Emitter cut-off current	I_{EBO}	$V_{EB} = 9\text{V}, I_C = 0$			1	mA
DC current gain	$h_{FE(1)}$	$V_{CE} = 5\text{V}, I_C = 0.5\text{A}$	20		40	
	$h_{FE(2)}$	$V_{CE} = 5\text{V}, I_C = 1.5\text{A}$	5			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 1\text{A}, I_B = 250\text{mA}$			0.6	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 1\text{A}, I_B = 250\text{mA}$			1.2	V
Base-emitter voltage	V_{BE}	$I_E = 2\text{A}$			3	V
Transition frequency	f_T	$V_{CE} = 10\text{V}, I_C = 100\text{mA}$ $f = 1\text{MHz}$	5			MHz
Fall time	t_f	$I_C = 1\text{A}, I_{B1} = -I_{B2} = 0.2\text{A}$ $V_{CC} = 100\text{V}$			0.5	μs
Storage time	t_s	$I_C = 250\text{mA}$	2		4	μs

CLASSIFICATION OF $h_{FE(1)}$

Range	20-30	30-40
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CLASSIFICATION OF t_s

Rank	A	B
Range	2.0-3.0 (μs)	3.0-4.0 (μs)

Static Characteristic
