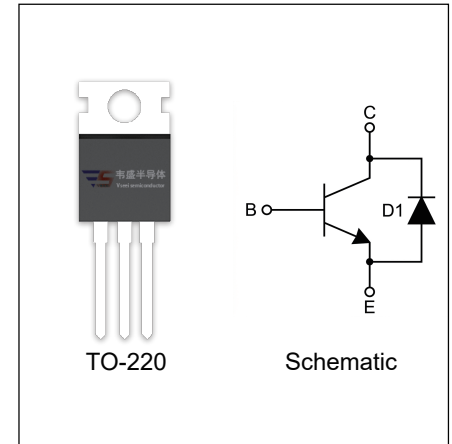


13005ND66

TRANSISTOR (NPN)

FEATURES

- Power switching applications
- Good high temperature
- Low saturation voltage
- High speed switching



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	420	V
V_{EBO}	Emitter-Base Voltage	9	V
I_C	Collector Current -Continuous	4	A
P_C	Collector Power Dissipation	2	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	62.5	$^{\circ}\text{C/W}$
T_J, T_{stg}	Operation Junction and Storage Temperature Range	-55-150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$ 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	$V_{(BR)CEO}$	$I_C = 10\text{mA}, I_B = 0$	420			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 1\text{mA}, I_C = 0$	9			V
Collector cut-off current	I_{CBO}	$V_{CB} = 700\text{V}, I_E = 0$			100	μA
Collector cut-off current	I_{CEO}	$V_{CE} = 400\text{V}, I_B = 0$			100	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 7\text{V}, I_C = 0$			100	μA
DC current gain	$h_{FE(1)}$	$V_{CE} = 5\text{V}, I_C = 1\text{A}$	10		40	
	$h_{FE(2)}$	$V_{CE} = 5\text{V}, I_C = 200\text{mA}$	10		60	
	$h_{FE(3)}$	$V_{CE} = 5\text{V}, I_C = 10\text{mA}$	5			
	$h_{FE(4)}$	$V_{CE} = 5\text{V}, I_C = 4\text{A}$	8		40	
Collector-emitter saturation voltage	$V_{CE(sat)(1)}$	$I_C = 1\text{A}, I_B = 0.2\text{A}$			0.3	V
	$V_{CE(sat)(2)}$	$I_C = 2\text{A}, I_B = 0.4\text{A}$	0.15		0.35	V
	$V_{CE(sat)(3)}$	$I_C = 4\text{A}, I_B = 1\text{A}$			0.8	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 2\text{A}, I_B = 0.5\text{A}$			1.6	V
Diode forward voltage	V_{FEC}	$I_C = 2\text{A}$			2	V
Transition frequency	f_T	$V_{CE} = 10\text{V}, I_C = 0.5\text{A}, f = 1\text{MHz}$	5			MHz
Rise time	t_r	$I_C = 250\text{mA}$			0.5	μs
Storage time	t_s	$I_C = 250\text{mA}$	2.0		4.0	
Fall time	t_f	$I_C = 250\text{mA}$			0.5	

CLASSIFICATION of $h_{FE(2)}$

Range	20~30	30~40
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CLASSIFICATION of $t_s(\mu\text{s})$

Rank	A	B
Range	2.0-3.0	3.0-4.0

Static Characteristic
