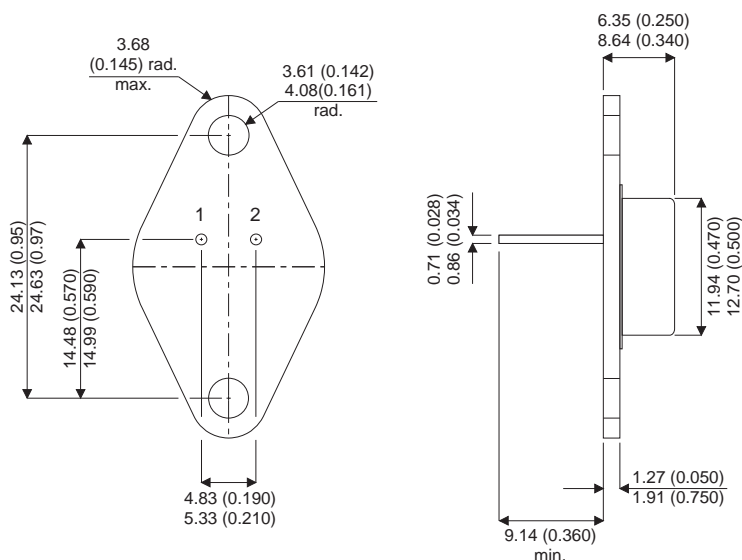


MECHANICAL DATA

Dimensions in mm (inches)



TO-66 (TO-213AA)

Underside View

1 = Base 2 = Emitter 3 = Collector

NPN BIPOLAR POWER SWITCHING TRANSISTORS

FEATURES

- FAST SWITCHING
- CECC SCREENING OPTIONS
- SPACE QUALITY LEVELS OPTIONS
- JAN LEVEL SCREENING OPTIONS

APPLICATIONS

- HIGH SPEED SWITCHING CIRCUITS
- POWER AMPLIFIERS

ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ unless otherwise stated)

		2N5664	2N5665
V_{CBO}	Collector – Base Voltage	250V	400V
V_{CEO}	Collector – Emitter Voltage ($I_B = 0$)	200V	300V
V_{EBO}	Emitter – Base Voltage ($I_B = 0$)	6V	
I_B	Base Current	0.6A	
I_C	Collector Current	3A	
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-65 to +200°C	
$R_{\theta JC}$	Thermal Resistance Junction to Case	3.33°C/W	
P_D	Power Dissipation	30W	

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

ELECTRICAL CHARACTERISTICS - 2N5664 ($T_A = 25^\circ\text{C}$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{\text{CEO(sus)}}$ Collector – Emitter Sustaining Voltage	$I_C = 10\text{mA}$ $I_B = 0$	200			V
$V_{\text{CER(sus)}}$ Collector – Emitter Sustaining Voltage	$I_C = 10\text{mA}$ $R_{\text{EB}} = 100\Omega$	250			
I_{CES} Collector – Emitter Cut-off Current	$V_{\text{CE}} = 200\text{V}$ $I_B = 0$			1.0	μA
	$V_{\text{CE}} = 175\text{V}$ $T_C = 150^\circ\text{C}$			100	
I_{EBO} Emitter Base Cut-off Current	$V_{\text{EB}} = 6\text{V}$ $I_E = 0$			10	μA
$V_{\text{CE(sat)}}$ Collector – Emitter Saturation Voltage	$I_C = 3.0\text{A}$ $I_B = 0.3\text{A}$			0.4	V
$V_{\text{BE(sat)}}$ Base – Emitter On Voltage	$I_C = 3.0\text{A}$ $I_B = 0.3\text{A}$			1.2	
h_{FE} DC Current Gain	$I_C = 0.5\text{A}$ $V_{\text{CE}} = 2\text{V}$	40			—
	$I_C = 1.0\text{A}$ $V_{\text{CE}} = 5\text{V}$	40		120	
	$I_C = 3.0\text{A}$ $V_{\text{CE}} = 5\text{V}$	15			
C_{obo} Output Capacitance	$V_{\text{CB}} = 5.0\text{V}$ $f = 1\text{MHz}$			125	pF
$[h_{\text{fe}}]$ Small Signal Current Gain	$V_{\text{CE}} = 5.0\text{V}$ $I_C = 0.5\text{A}$ $f = 10\text{MHz}$	2.0			—
t_{on} Turn on time	$I_C = 1.0\text{A}$ $V_{\text{CC}} = 100\text{V}$ $I_{\text{B1}} = - I_{\text{B2}} = 30\text{mA}$			0.25	μs
t_{off} Turn off time	$I_C = 1.0\text{A}$ $V_{\text{CC}} = 100\text{V}$ $I_{\text{B1}} = - I_{\text{B2}} = 30\text{mA}$			1.5	

1) f_t is defined as the frequency at which $|h_{\text{fe}}|$ extrapolates to unity.

ELECTRICAL CHARACTERISTICS - 2N5665 ($T_A = 25^\circ\text{C}$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_{CEO(sus)}$ Collector – Emitter Sustaining Voltage	$I_C = 10\text{mA}$ $I_B = 0$	300			V
$V_{CER(sus)}$ Collector – Emitter Sustaining Voltage	$I_C = 10\text{mA}$ $R_{EB} = 100\Omega$	400			
I_{CES} Collector – Emitter Cut-off Current	$V_{CE} = 300\text{V}$ $I_B = 0$			1.0	μA
	$V_{CE} = 250\text{V}$ $T_C = 150^\circ\text{C}$			100	
I_{EBO} Emitter Base Cut-off Current	$V_{EB} = 6\text{V}$ $I_E = 0$			10	μA
$V_{CE(sat)}$ Collector – Emitter Saturation Voltage	$I_C = 3.0\text{A}$ $I_B = 0.6\text{A}$			0.4	V
$V_{BE(sat)}$ Base – Emitter On Voltage	$I_C = 3.0\text{A}$ $I_B = 0.6\text{A}$			1.2	
h_{FE} DC Current Gain	$I_C = 0.5\text{A}$ $V_{CE} = 2\text{V}$	25			—
	$I_C = 1.0\text{A}$ $V_{CE} = 5\text{V}$	25		75	
	$I_C = 3.0\text{A}$ $V_{CE} = 5\text{V}$	15			
C_{obo} Output Capacitance	$V_{CB} = 5.0\text{V}$ $f = 1\text{MHz}$			125	pF
$[h_{fe}]$ Small Signal Current Gain	$V_{CE} = 5.0\text{V}$ $I_C = 0.5\text{A}$ $f = 10\text{MHz}$	2.0			—
t_{on} Turn on time	$I_C = 1.0\text{A}$ $V_{CC} = 100\text{V}$ $I_{B1} = -I_{B2} = 30\text{mA}$			0.25	μs
t_{off} Turn off time	$I_C = 1.0\text{A}$ $V_{CC} = 100\text{V}$ $I_{B1} = -I_{B2} = 30\text{mA}$			2.0	

1) f_t is defined as the frequency at which $|h_{fe}|$ extrapolates to unity.