

2N6702, 2N6703, 2N6704

High-Current, Silicon N-P-N  
 VERSAWATT Transistors

MAXIMUM RATINGS, Absolute-Maximum Values:

	2N6702	2N6703	2N6704	
• $V_{CEV}$	140	160	180	V
• $V_{BE} = -1.5$ V	90	110	130	V
• $V_{CEO}$		7		V
• $V_{CEO}$	5	5	4	A
• $I_C$		7		A
• $I_C$		10		A
• $I_B$		5		A
• $P_T$		50		W
• $T_C$ up to 25°C		0.4		W/°C
• $T_C$ above 25°C		-65 to 150		°C
• $T_{stg}, T_J$				°C
• $T_L$		235		°C
At distance $\geq 1/8$ in. (3.16 mm) from seating plane for 10 s max. ....				

\*In accordance with JEDEC registration data.

ELECTRICAL CHARACTERISTICS, at Case Temperature  $T_C = 25^\circ\text{C}$  Unless Otherwise Specified

CHARACTERISTIC	TEST CONDITIONS				LIMITS						UNITS
	VOLTAGE		CURRENT		2N6702		2N6703		2N6704		
	V dc	A dc	$I_C$	$I_B$	Min.	Max.	Min.	Max.	Min.	Max.	
* $I_{CEV}$	140	-1.5			-	100	-	-	-	-	$\mu\text{A}$
	180	-1.5			-	-	-	100	-	-	
	180	-1.5			-	-	-	-	100	-	
$T_C = 125^\circ\text{C}$	140	-1.5			-	1	-	-	-	-	mA
	180	-1.5			-	-	-	1	-	-	
	180	-1.5			-	-	-	-	1	-	
* $I_{EBO}$		-7	0		-	100	-	100	-	100	$\mu\text{A}$
* $V_{CEO(sus)b}$			0.01 <sup>a</sup>	0	90	-	110	-	130	-	V
* $h_{FE}$	2		0.2 <sup>a</sup>		30	-	30	-	30	-	
	2		4 <sup>a</sup>		-	-	-	-	20	-	
	2		5 <sup>a</sup>		20	-	20	-	-	-	
* $V_{BE(sat)}$			4 <sup>a</sup>	0.4	-	-	-	-	-	1.4	V
			5 <sup>a</sup>	0.5	-	1.5	-	1.5	-	-	
* $V_{CE(sat)}$			4 <sup>a</sup>	0.4	-	-	-	-	-	0.7	V
			5 <sup>a</sup>	0.5	-	0.8	-	0.8	-	-	
			7 <sup>a</sup>	0.7	-	1.5	-	1.5	-	1.5	
* $I_S/b$	20		2.5		1	-	1	-	1	-	s
* $ h_{fe} $ $f = 5$ MHz	10		0.5		10	40	10	40	10	40	
* $f_T$	10		0.5		50	200	50	200	50	200	MHz
* $C_{obo}$ $f = 0.1$ MHz	10 <sup>c</sup>				50	150	50	150	50	150	pF
* $t_d^d$		-4	4	0.4	-	-	-	-	-	0.1	$\mu\text{s}$
			5	0.5	-	0.1	-	0.1	-	-	
* $t_r^d$		-4	4	0.4	-	-	-	-	-	0.25	$\mu\text{s}$
			5	0.5	-	0.25	-	0.25	-	-	
* $t_s^d$		-4	4	0.4 <sup>e</sup>	-	-	-	-	-	1	$\mu\text{s}$
			5	0.5 <sup>e</sup>	-	1	-	1	-	-	
* $t_f^d$		-4	4	0.4 <sup>e</sup>	-	-	-	-	-	0.5	$\mu\text{s}$
			5	0.5 <sup>e</sup>	-	0.5	-	0.5	-	-	
* $R_{\theta JC}$	4		5		-	2.5	-	2.5	-	2.5	°C/W

\* In accordance with JEDEC registration data.  
<sup>a</sup> Pulsed: pulse duration = 300  $\mu\text{s}$ , duty factor  $\leq 2\%$ .  
<sup>b</sup> CAUTION: The sustaining voltage  $V_{CEO(sus)}$  MUST NOT be measured on a curve tracer.

<sup>c</sup>  $V_{CB}$  value.  
<sup>d</sup>  $V_{CC} = 70$  V,  $t_p = 20$   $\mu\text{s}$   
<sup>e</sup>  $I_{B1} = -I_{B2}$

