

TYPES 2N6326, 2N6327, 2N6328 **N-P-N SINGLE-DIFFUSED MESA SILICON POWER TRANSISTORS**

*electrical characteristics at 25°C case temperature (unless otherwise noted)

PARAMETER	TEST CONDITIONS	2N6326		2N6327		2N6328		UNIT
		MIN	MAX	MIN	MAX	MIN	MAX	
$V_{(BR)CEO}$ Collector-Emitter Breakdown Voltage	$I_C = 30 \text{ mA}$, $I_B = 0$, See Note 6	60		80		100		V
I_{CEO} Collector Cutoff Current	$V_{CE} = 30 \text{ V}$, $I_B = 0$		1					mA
	$V_{CE} = 40 \text{ V}$, $I_B = 0$				1			
	$V_{CE} = 50 \text{ V}$, $I_B = 0$						1	
I_{CES} Collector Cutoff Current	$V_{CE} = 60 \text{ V}$, $V_{BE} = 0$		0.5					mA
	$V_{CE} = 80 \text{ V}$, $V_{BE} = 0$				0.5			
	$V_{CE} = 100 \text{ V}$, $V_{BE} = 0$						0.5	
	$V_{CE} = 30 \text{ V}$, $V_{BE} = 0$, $T_C = 150^\circ\text{C}$		5					
	$V_{CE} = 40 \text{ V}$, $V_{BE} = 0$, $T_C = 150^\circ\text{C}$				5			
	$V_{CE} = 50 \text{ V}$, $V_{BE} = 0$, $T_C = 150^\circ\text{C}$						5	
	$V_{CE} = 50 \text{ V}$, $V_{BE} = 0$, $T_C = 150^\circ\text{C}$						5	
I_{EBO} Emitter Cutoff Current	$V_{EB} = 5 \text{ V}$, $I_C = 0$		0.5		0.5		0.5	mA
h_{FE} Static Forward Current Transfer Ratio	$V_{CE} = 4 \text{ V}$, $I_C = 5 \text{ A}$	25		25		25		
	$V_{CE} = 4 \text{ V}$, $I_C = 15 \text{ A}$	12		12		12		
	$V_{CE} = 4 \text{ V}$, $I_C = 30 \text{ A}$	6	30	6	30	6	30	
V_{BE} Base-Emitter Voltage	$V_{CE} = 4 \text{ V}$, $I_C = 15 \text{ A}$		2		2		2	V
	$V_{CE} = 4 \text{ V}$, $I_C = 30 \text{ A}$		4		4		4	
$V_{CE(sat)}$ Collector-Emitter Voltage	$I_B = 2 \text{ A}$, $I_C = 15 \text{ A}$		1.5		1.5		1.5	V
	$I_B = 7.5 \text{ A}$, $I_C = 30 \text{ A}$		3		3		3	
h_{fe} Small-Signal Common-Emitter Forward Current Transfer Ratio	$V_{CE} = 10 \text{ V}$, $I_C = 1 \text{ A}$, $f = 1 \text{ kHz}$	30		30		30		
$ h_{fe} $ Small-Signal Common-Emitter Forward Current Transfer Ratio	$V_{CE} = 10 \text{ V}$, $I_C = 1 \text{ A}$, $f = 1 \text{ MHz}$	3		3		3		

NOTES: 6. These parameters must be measured using pulse techniques. $t_w = 300 \mu\text{s}$, duty cycle $\leq 2\%$.

7. These parameters are measured with voltage-sensing contacts separate from the current-carrying contacts and located within 0.125 inch from the device body.

*JEDEC registered data

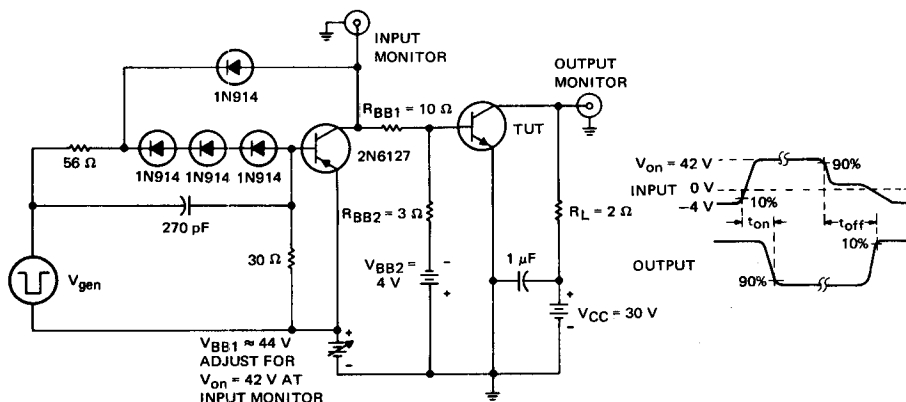
switching characteristics at 25°C case temperature

PARAMETER	TEST CONDITIONS†			TYP	UNIT
t_{on} Turn-On Time	$I_C = 15 \text{ A}$, $I_{B(1)} = 2 \text{ A}$, $I_{B(2)} = -2 \text{ A}$			0.6	μs
t_{off} Turn-Off Time	$V_{BE(off)} = -4 \text{ V}$, $R_L = 2 \Omega$, See Figure 1			0.9	

†Voltage and current values shown are nominal, exact values vary slightly with transistor parameters.

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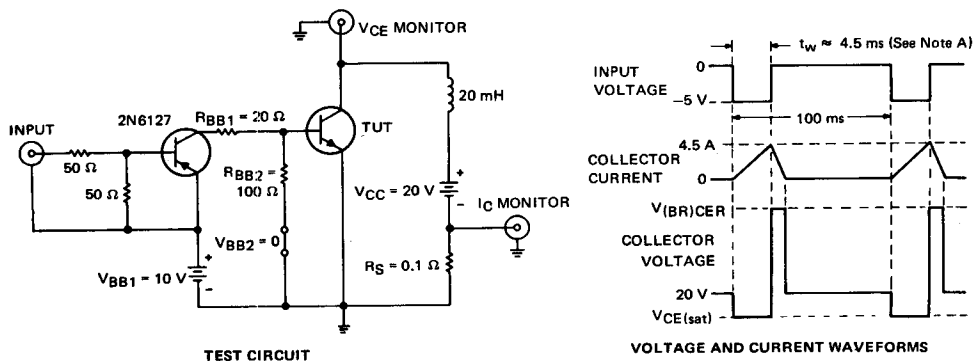
PARAMETER MEASUREMENT INFORMATION



- NOTES: A. V_{gen} is a -30-V pulse (from 0 V) into a 50- Ω termination.
 B. The V_{gen} waveform is supplied by a generator with the following characteristics: $t_r \leq 15$ ns, $t_f \leq 15$ ns, $Z_{out} = 50 \Omega$, $t_w = 20 \mu$ s, duty cycle $\leq 2\%$.
 C. Waveforms are monitored on an oscilloscope with the following characteristics: $t_r \leq 15$ ns, $R_{in} \geq 10$ M Ω , $C_{in} \leq 11.5$ pF.
 D. Resistors must be noninductive types.
 E. The d-c power supplies may require additional bypassing in order to minimize ringing.

FIGURE 1

INDUCTIVE LOAD SWITCHING



NOTE A: Input pulse width is increased until $I_{CM} = 4.5$ A.

FIGURE 2

TYPES 2N6326, 2N6327, 2N6328

N-P-N SINGLE-DIFFUSED MESA SILICON POWER TRANSISTORS

MAXIMUM SAFE OPERATING AREAS

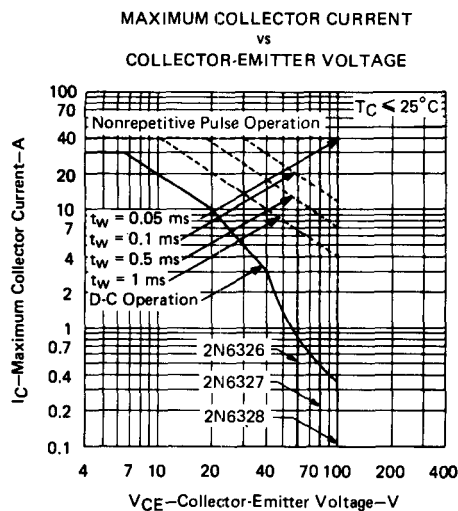


FIGURE 3

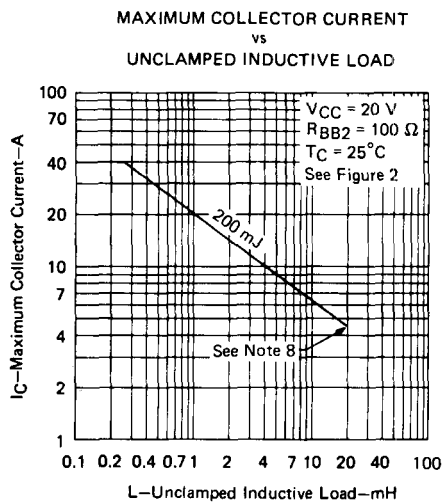


FIGURE 4

NOTE 8: Above this point the safe operating area has not been defined.

THERMAL INFORMATION

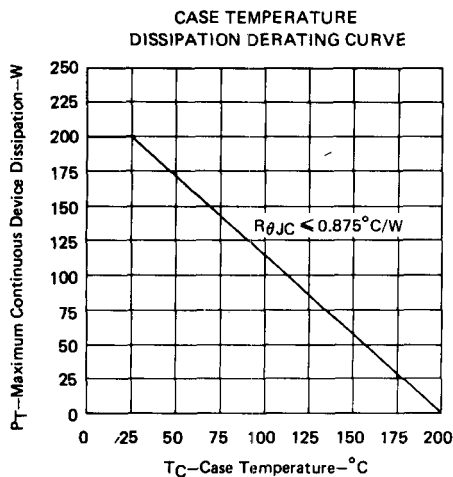


FIGURE 5

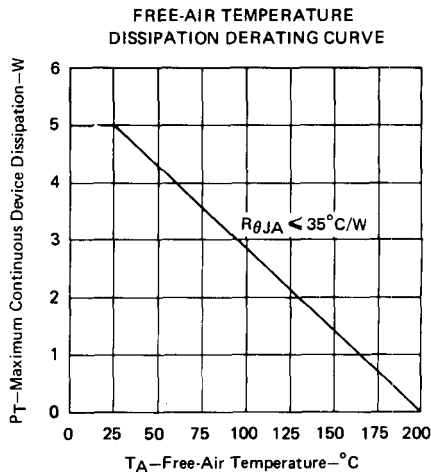


FIGURE 6

Typ type	P_{tot}		V_{CEO} min V	I_{CD} max A	min	hFE max	@	I_C A
	$T_A = 25\text{ }^{\circ}\text{C}$ (100 $^{\circ}\text{C}$) W	$T_C = 25\text{ }^{\circ}\text{C}$ (100 $^{\circ}\text{C}$) W						
2N 5685	5	300	60	50	15	60		25
2N 5686	5	300	80	50	15	60		25
2N 5758	5	150	100	6	25	100		3
2N 5759	5	150	120	6	20	80		3
2N 5760	5	150	140	6	15	60		3
2N 6326	5	200	60	30	12			15
2N 6327	5	200	80	30	12			15
2N 6328	5	200	100	30	12			15

NPN-LEISTUNGSTRANSISTOREN (Hochvolt-Anwendungen)

NPN POWER TRANSISTORS (High-Voltage Applications)

Typ type	P_{tot}		V_{CEO} min V	I_{CD} max A	min	hFE max	@	I_C A
	$T_G = 25\text{ }^{\circ}\text{C}$ ($T_C = 100\text{ }^{\circ}\text{C}$) W							
BD 410		20	325	1	30	240		0,05
BD 253		50	200	4	15			1
BD 253 A		50	250	4	15			1
BD 253 B		50	300	4	15			1
BD 253 C		50	400	4	15			1
TIP 660		125	200	5	500			3
TIP 661		125	300	5	500			3
TIP 662		125	400	5	500			3
BU 105		(10)	1500	2,5				
BU 108		(12,5)	1500	5				
BU 126		50	750	6	15	60		1,0
BUY 69 A		100	1000*	10	15			1,0
BUY 69 B		100	800*	10	15			1,0
BUY 69 C		100	500*	10	15			1,0

f_T min MHz	I_{CES} (I_{CEO}) μA	@ V_{CE} V	Gehäuse package	Anwendungen, Bemerkungen applications, remarks
0,15	(1000)	30	TO-3	Verstärker, schneller Schalter
0,15	(1000)	40	TO-3	komplementär zu 2N 5683, 2N 5684 amplifier, fast switch complementary to 2N 5683, 2N 5684
1	(1000)	50	TO-3	Verstärker, schneller Schalter
1	(1000)	60	TO-3	komplementär zu TIP 544, TIP 545, TIP 546
1	(1000)	70	TO-3	amplifier, fast switch complementary to TIP 544, TIP 545, TIP 546
3	(1000)	30	TO-3	Verstärker, schneller Schalter
3	(1000)	40	TO-3	komplementär zu 2N 6329, 2N 6330, 2N 6331
3	(1000)	50	TO-3	amplifier, fast switch complementary to 2N 6329, 2N 6330, 2N 6331

f_T min MHz	* I_{CEV} (I_{CEO}) I_{CES} mA	@ V_{CE} V	Gehäuse package	Anwendungen, Bemerkungen applications, remarks
15	2	35	SOT-32	NF-Endstufen in Rundf.- u. FS.-Empfängern $V_{CBO} > 500$ V for vertical outputs stages low-frequency final stages in broadcasting and TV receivers $V_{CBO} > 500$ V
15	2	350	TO-3	Netzgeräte und Inverter
15	2	500	TO-3	Power supply and inverter
15	2	700	TO-3	
15	2	900	TO-3	
	(2)	100	TO-3	Verstärker, Schalter, Anwendung in Netzgeräten.
	(2)	200	TO-3	Hochvoltanwendung
	(2)	300	TO-3	amplifier, switch, power supply high voltage
	1	1500	TO-3	Fernsehanwendung, Horizontal-Ablenkendstufen
	(1)	1500	TO-3	Schnelle Schalteranwendung bei hohen Strömen t_T typ. 400 ns bei $I_C = 8$ A TV applications, horizontal-deflection output stage high-speed switching applications at high currents t_T typ. 400 ns @ $I_C = 8$ A
10	0,005	600	TO-3	Für Schalteranwendungen und Netzgeräte switch, power supply
	(1)	1000	TO-3	Für Schalteranwendungen
	(1)	800	TO-3	switching applications
	(1)	500	TO-3	