

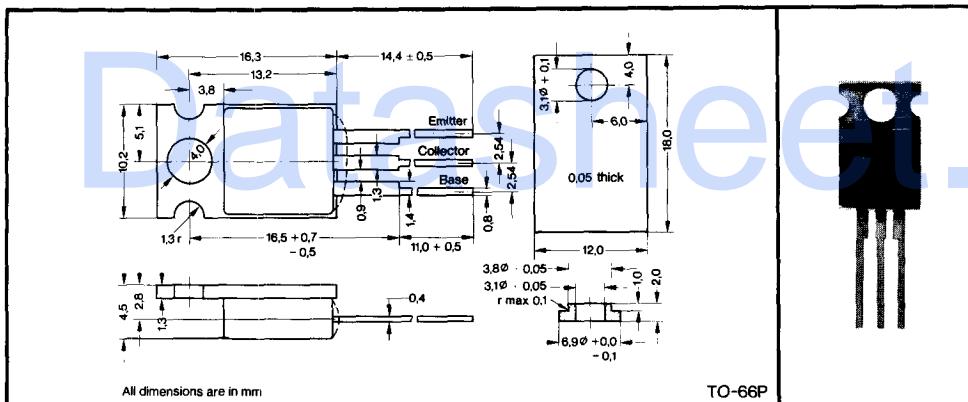
BD243, BD243A, BD243B, BD243C

1271

FOR POWER-AMPLIFIER AND HIGH-SPEED-SWITCHING APPLICATIONS
DESIGNED FOR COMPLEMENTARY USE WITH BD244A-C

- 65 W at 25 °C Case Temperature
 - 6 A Rated Collector Current
 - Min f_T of 3 MHz at 10 V, 500 mA

mechanical data



absolute maximum ratings at 25 °C case temperature (unless otherwise noted)

	BD243	BD243A	BD243B	BD243C
Collector-Emitter Voltage ($R_{BE} = 100 \Omega$)	55 V	70 V	90 V	115 V
Collector-Emitter Voltage (See Note 1)	45 V	60 V	80 V	100 V
Emitter-Base Voltage	↔	5 V	→	
Continuous Collector Current	↔	6 A	→	
Peak Collector Current (See Note 2)	↔	10 A	→	
Continuous Base Current	↔	3 A	→	
Safe Operating Region at (or below) 25 °C Case Temperature	↔	See Figure 5		
Continuous Device Dissipation at (or below) 25 °C Case Temperature (See Note 3)	↔	65 W	→	
Continuous Device Dissipation at (or below) 25 °C Free-Air Temperature (See Note 4)	↔	2 W	→	
Unclamped Inductive Load Energy (See Note 5)	↔	62.5 mJ	→	
Operating Collector Junction Temperature Range	↔	−65 °C to 150 °C		
Storage Temperature Range	↔	−65 °C to 150 °C		
Lead Temperature 1/8 Inch from Case for 5 Seconds	↔	250 °C		

NOTES: 1. This value applies when the base-emitter diode is open-circuited.

2. This value applies for $t_{on} \leq 0.3$ ms, duty cycle $\leq 10\%$.

3. Derate linearly to 150 °C case temperature at the rate of 0.52 W/°C.

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5. This rating is based on the capability of the transistor to operate safely.

5. This rating is based on the capability of the transistor to operate safely in the circuit of Figure 2. $E = 20$ mV, $R_{BB1} = 100\ \Omega$, $V_{BE} = 0$ V, $R_S = 0.1\ \Omega$, $V_{CC} = 10$ V, $E_{energy} \approx 1e^2 L/2$.

$V_{BB2} = 0$ V, $R_S = 0.1 \Omega$, $V_{CC} = 10$ V. Energy $\sim I_C \cdot L/2$.

BD243, BD243A, BD243B, BD243C

electrical characteristics at 25 °C case temperature

PARAMETER	TEST CONDITIONS	BD243		BD243A		BD243B		BD243C		UNIT
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
$V_{(BR)CEO}$	$I_C = 30 \text{ mA}$, See Note 6	$I_B = 0$,	45	60	80	100				V
I_{CEO}	$V_{CE} = 30 \text{ V}$, $V_{CE} = 60 \text{ V}$,	$I_B = 0$		0.7	0.7		0.7	0.7	0.7	mA
I_{CES}	$V_{CE} = 45 \text{ V}$, $V_{CE} = 60 \text{ V}$, $V_{CE} = 80 \text{ V}$, $V_{CE} = 100 \text{ V}$,	$V_{BE} = 0$		0.4		0.4		0.4	0.4	
I_{EBO}	$V_{EB} = 5 \text{ V}$,	$I_C = 0$		1	1	1	1	1	1	mA
h_{FE}	$V_{CE} = 4 \text{ V}$, See Notes 6 and 7	$I_C = 0.3 \text{ A}$,	30	30	30	30	30	30	30	
	$V_{CE} = 4 \text{ V}$, See Notes 6 and 7	$I_C = 3 \text{ A}$,	15	15	15	15	15	15	15	
V_{BE}	$V_{CE} = 4 \text{ V}$, See Notes 6 and 7	$I_C = 6 \text{ A}$,		2	2	2	2	2	2	V
$V_{CE(sat)}$	$I_B = 1.0 \text{ A}$, See Notes 6 and 7	$I_C = 6 \text{ A}$,		1.5	1.5	1.5	1.5	1.5	1.5	V
h_{fe}	$V_{CE} = 10 \text{ V}$, $f = 1 \text{ kHz}$	$I_C = 0.5 \text{ A}$,	20	20	20	20	20	20	20	
$ h_{fe} $	$V_{CE} = 10 \text{ V}$, $f = 1 \text{ MHz}$	$I_C = 0.5 \text{ A}$	3	3	3	3	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.

thermal characteristics

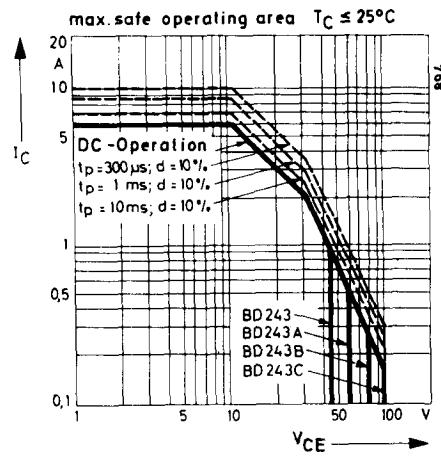
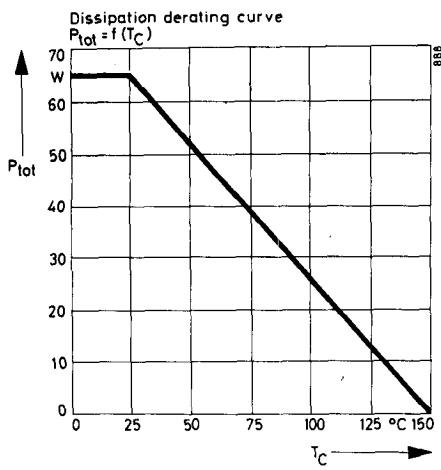
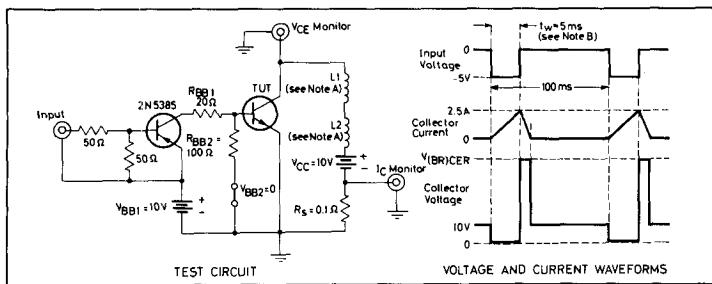
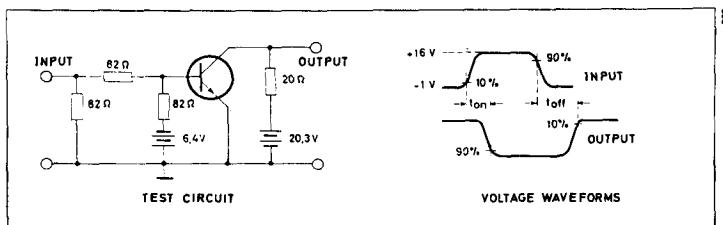
PARAMETER		MAX	UNIT
$R_{\theta JC}$	Junction-to-Case Thermal Resistance	1.92	
$R_{\theta JA}$	Junction-to-Free-Air Thermal Resistance	62.5	°C/W

switching characteristics at 25 °C case temperature

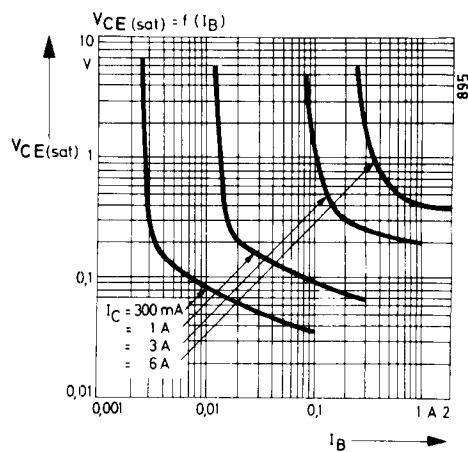
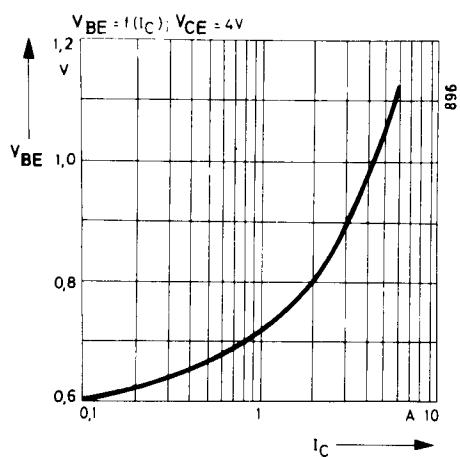
PARAMETER	TEST CONDITIONS ⁺		TYP	UNIT
t_{on}	$I_C = 1 \text{ A}$,	$I_B(1) = 0.1 \text{ A}$,	0.3	
t_{off}	$V_{BE(\text{off})} = -3.7 \text{ V}$,	$R_L = 20 \Omega$,	1	μs
		See Figure 1		

⁺ Voltage and current values shown are nominal; exact values vary slightly with transistor parameters.

BD243, BD243A, BD243B, BD243C



BD243, BD243A, BD243B, BD243C



TEXAS INSTRUMENTS

SILIZIUM-KOMPLEMENTARE-LEISTUNGSTRANSISTOREN
(Allgemeine und NF-Anwendungen)

SILICON COMPLEMENTARY POWER TRANSISTORS
(General and Low-frequency Applications)

Typ type NPN	PNP	P _{tot} ^(a) T _C = 25 °C (100 °C) W	V _{CEO} min	I _{CD} max A	min	h _{FE} max	^(a)	I _C A
BD 239	BD 240	30	45	2	40			0,2
BD 239 A	BD 240 A	30	60	2	40			0,2
BD 239 B	BD 240 B	30	80	2	40			0,2
BD 239 C	BD 240 C	30	100	2	40			0,2
BD 241	BD 242	40	45	3	25			1
BD 241 A	BD 242 A	40	60	3	25			1
BD 241 B	BD 242 B	40	80	3	25			1
BD 241 C	BD 242 C	40	100	3	25			1
BD 243	BD 244	65	45	6	30			0,3
BD 243 A	BD 244 A	65	60	6	30			0,3
BD 243 B	BD 244 B	65	80	6	30			0,3
BD 243 C	BD 244 C	65	100	6	30			0,3
BD 245	BD 246	80	45	10	40			1
BD 245 A	BD 246 A	80	60	10	40			1
BD 245 B	BD 246 B	80	80	10	40			1
BD 245 C	BD 246 C	80	100	10	40			1
BD 249	BD 250	125	45	25	25			1,5
BD 249 A	BD 250 A	125	60	25	25			1,5
BD 249 B	BD 250 B	125	80	25	25			1,5
BD 249 C	BD 250 C	125	100	25	25			1,5
TIP 29	TIP 30	30	40	1	40	200		0,2
TIP 29 A	TIP 30 A	30	60	1	40	200		0,2
TIP 29 B	TIP 30 B	30	80	1	40	200		0,2
TIP 29 C	TIP 30 C	30	100	1	40	200		0,2
TIP 31	TIP 32	40	40	3	25	100		1
TIP 31 A	TIP 32 A	40	60	3	25	100		1
TIP 31 B	TIP 32 B	40	80	3	25	100		1
TIP 31 C	TIP 32 C	40	100	3	25	100		1
TIP 33	TIP 34	80	40	10	40	125		1
TIP 33 A	TIP 34 A	80	60	10	40	125		1
TIP 33 B	TIP 34 B	80	80	10	40	125		1
TIP 33 C	TIP 34 C	80	100	10	40	125		1
TIP 35	TIP 36	90	40	25	25	100		1,5
TIP 35 A	TIP 36 A	90	60	25	25	100		1,5

f _T m n M±z	I _{CES} @ (I _{CEO}) μA	V _{CE} V	Gehäuse package	Anwendungen, Bemerkungen applications, remarks
			TO-66P TO-66P TO-66P TO-66P	
			TO-66P TO-66P TO-66P TO-66P	
			TO-66P TO-66P TO-66P TO-66P	Verstärker, Schalter amplifier, switch
			TO-3P TO-3P TO-3P TO-3P	
			TO-3P TO-3P TO-3P TO-3P	
3	200	40	TO-66P	Verstärker, Schalter, komplementär zu TIP 30 amplifier, switch, complementary to TIP 30
3	200	60	TO-66P	Verstärker, Schalter, komplementär zu TIP 30 A amplifier, switch, complementary to TIP 30 A
3	200	80	TO-66P	Verstärker, Schalter, komplementär zu TIP 30 B amplifier, switch, complementary to TIP 30 B
3	200	100	TO-66P	Verstärker, Schalter, komplementär zu TIP 30 C amplifier, switch, complementary to TIP 30 C
3	300	40	TO-66P	Verstärker, Schalter, komplementär zu TIP 32 amplifier, switch, complementary to TIP 32
3	300	60	TO-3P	Verstärker, Schalter, komplementär zu TIP 32 A amplifier, switch, complementary to TIP 32 A
3	300	80	TO-3P	Verstärker, Schalter, komplementär zu TIP 32 B amplifier, switch, complementary to TIP 32 B
3	300	100	TO-3P	Verstärker, Schalter, komplementär zu TIP 32 C amplifier, switch, complementary to TIP 32 C
3	400	40	TO-3P	Verstärker, Schalter, komplementär zu TIP 34 amplifier, switch, complementary to TIP 34
3	400	60	TO-3P	Verstärker, Schalter, komplementär zu TIP 34 A amplifier, switch, complementary to TIP 34 A
3	400	80	TO-3P	Verstärker, Schalter, komplementär zu TIP 34 B amplifier, switch, complementary to TIP 34 B
3	400	100	TO-3P	Verstärker, Schalter, komplementär zu TIP 34 C amplifier, switch, complementary to TIP 34 C
3	700	40	TO-3P	Verstärker, Schalter, komplementär zu TIP 36 amplifier, switch, complementary to TIP 36
3	700	60	TO-3P	Verstärker, Schalter, komplementär zu TIP 36 A amplifier, switch, complementary to TIP 36 A

Typ type	f MHz	V _{CC}	P _{in}	P _{out}	BV _{CBO}	BV _{CEO}	Gehäuse package
2N 5713	150	13	3,4	11	60	40	TO-128
2N 5773	400	28	0,12	1,5	65	35	TO-117
2N 5774	400	26	1	8	65	35	TO-129
2N 5848	50	12,5	3,25	20	48	24	145

NF-TRANSISTOREN PNP/NPN

NF TRANSISTORS PNP/NPN

Typ type		P _{tot} @ T _C = 25 °C (100 °C)	V _{CEO} min V	I _{CD} max A	min	h _{FE} max	(a)	I _C A
PNP	NPN	W						
BD 136	BD 135	6,5	45	1	40	250	0,15	
BD 138	BD 137	6,5	60	1	40	160	0,15	
BD 140	BD 139	6,5	80	1	40	160	0,15	
BD 240	BD 239	30	-45	-2	40		0,2	
BD 240 A	BD 239 A	30	-60	-2	40		0,2	
BD 240 B	BD 239 B	30	-80	-2	40		0,2	
BD 240 C	BD 239 C	30	-100	-2	40		0,2	
BD 242	BD 241	40	-45	-3	25		1	
BD 242 A	BD 241 A	40	-60	-3	25		1	
BD 242 B	BD 241 B	40	-80	-3	25		1	
BD 242 C	BD 241 C	40	-100	-3	25		1	
BD 244	BD 243	65	-45	-6	30		0,3	
BD 244 A	BD 243 A	65	-60	-6	30		0,3	
BD 244 B	BD 243 B	65	-80	-6	30		0,3	
BD 244 C	BD 243 C	65	-100	-6	30		0,3	
BD 246	BD 245	80	-45	-10	40		1	
BD 246 A	BD 245 A	80	-60	-10	40		1	
BD 246 B	BD 245 B	80	-80	-10	40		1	
BD 246 C	BD 245 C	80	-100	-10	40		1	
BD 250	BD 249	125	-45	-25	25		1,5	
BD 250 A	BD 249 A	125	-60	-25	25		1,5	
BD 250 B	BD 249 B	125	-80	-25	25		1,5	
BD 250 C	BD 249 C	125	-100	-25	25		1,5	
BDX 14		30	-60	-3	25	100	-0,5	
BDX 15		117	-70	-10	20	70	-4	

Typ type	f MHz	V _{CC}	P _{in}	P _{out}	BV _{CBO}	BV _{CEO}	Gehäuse package
2N 5941	30	28		40PEP	65	35	DIA-4L
2N 5942	30	28		80PEP	65	35	DIA-4L
2N 5943	250	15	50 mA	7 dB	40	30	TO-39

f _{rr} in MHz	I _{CES} (I _{CEO}) μA	@ V _{CE} V	Gehäuse package	Anwendungen, Bemerkungen applications, remarks
			SOT-32 SOT-32 SOT-32	P _{tot} = T _C 65 °C
			TO-66P TO-66P TO-66P TO-66P	
			TO-66P TO-66P TO-66P TO-66P	
			TO-66P TO-66P TO-66P TO-66P	Verstärker und Schalter amplifier and switch
			TO-3P TO-3P TO-3P TO-3P	
			TO-3P TO-3P TO-3P TO-3P	
0,8 0,8		TO-66 TO-3		Schalter, Verstärker, komplementär 2N 3054 Schalter, Verstärker, komplementär 2N 3055