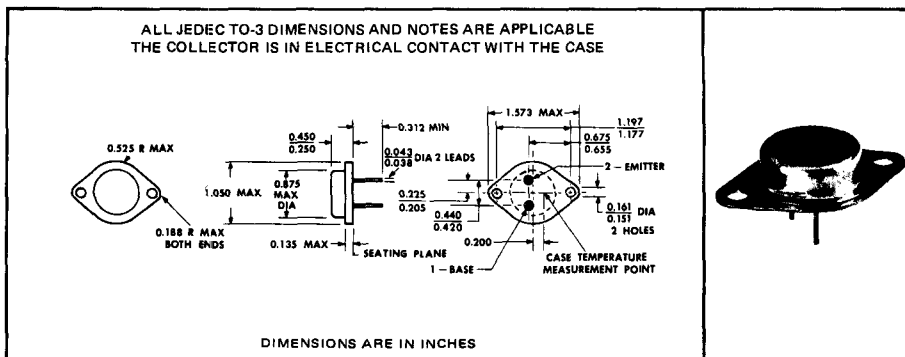


TYPES TIP535, TIP536, TIP537 N-P-N SILICON POWER TRANSISTORS

FOR POWER-AMPLIFIER AND HIGH-SPEED-SWITCHING APPLICATIONS

- 200 V, 300 V, 400 V Min $V_{(BR)CEO}$
- 7.5-A Rated Continuous Collector Current
- 100 Watts at 100°C Case Temperature
- Min f_T of 10 MHz at 10 V, 1 A

mechanical data



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

	TIP535	TIP536	TIP537
Collector-Base Voltage	300 V	400 V	500 V
Collector-Emitter Voltage (See Note 1)	200 V	300 V	400 V
Emitter-Base Voltage	5 V	5 V	5 V
Continuous Collector Current	7.5 A		
Peak Collector Current (See Note 2)	15 A		
Continuous Base Current	3 A		
Continuous Device Dissipation at (or below) 100°C Case Temperature (See Note 3)	100 W		
Continuous Device Dissipation at (or below) 25°C Free-Air Temperature (See Note 4)	5 W		
Operating Collector Junction Temperature Range	-65°C to 200°C		
Storage Temperature Range	-65°C to 200°C		
Terminal Temperature 1/16 Inch from Case for 10 Seconds	300°C		

- NOTES: 1. These values apply when the base-emitter diode is open-circuited.
2. This value applies for $t_{pw} \leq 0.3$ ms, duty cycle $\leq 10\%$.
3. Derate linearly to 200°C case temperature at the rate of 1 W/°C.
4. Derate linearly to 200°C free-air temperature at the rate of 28.6 mW/°C.

TYPES TIP535, TIP536, TIP537

N-P-N SILICON POWER TRANSISTORS

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

PARAMETER	TEST CONDITIONS	TIP535		TIP536		TIP537		UNIT
		MIN	MAX	MIN	MAX	MIN	MAX	
$V_{(BR)CEO}$ Collector-Emitter Breakdown Voltage	$I_C = 30 \text{ mA}$, $I_B = 0$, See Note 5	200		300		400		V
I_{CEO} Collector Cutoff Current	$V_{CE} = 100 \text{ V}$, $I_B = 0$		1					mA
	$V_{CE} = 150 \text{ V}$, $I_B = 0$				1			
	$V_{CE} = 200 \text{ V}$, $I_B = 0$					1		
I_{CES} Collector Cutoff Current	$V_{CE} = 300 \text{ V}$, $I_B = 0$		1					mA
	$V_{CE} = 400 \text{ V}$, $I_B = 0$				1			
	$V_{CE} = 500 \text{ V}$, $I_B = 0$					1		
	$V_{CE} = 150 \text{ V}$, $I_B = 0$, $T_C = 150^\circ\text{C}$		5					
	$V_{CE} = 200 \text{ V}$, $I_B = 0$, $T_C = 150^\circ\text{C}$				5			
	$V_{CE} = 250 \text{ V}$, $I_B = 0$, $T_C = 150^\circ\text{C}$					5		
I_{EBO} Emitter Cutoff Current	$V_{EB} = 4 \text{ V}$, $I_C = 0$		0.5		0.5		0.5	mA
	$V_{EB} = 5 \text{ V}$, $I_C = 0$		1		1		1	
h_{FE} Static Forward Current Transfer Ratio	$V_{CE} = 4 \text{ V}$, $I_C = 5 \text{ A}$	See Notes 5 and 6		20	100	20	100	
	$V_{CE} = 4 \text{ V}$, $I_C = 7.5 \text{ A}$			5	5	5	5	
V_{BE} Base-Emitter Voltage	$V_{CE} = 4 \text{ V}$, $I_C = 7.5 \text{ A}$, See Notes 5 and 6		2		2		2	V
$V_{CE(sat)}$ Collector-Emitter Saturation Voltage	$I_B = 0.5 \text{ A}$, $I_C = 5 \text{ A}$	See Notes 5 and 6		1.2	1.2		1.2	V
	$I_B = 1.8 \text{ A}$, $I_C = 7.5 \text{ A}$			2.5	2.5		2.5	
h_{fe} Small-Signal Common-Emitter Forward Current Transfer Ratio	$V_{CE} = 10 \text{ V}$, $I_C = 1 \text{ A}$, $f = 1 \text{ kHz}$	20		20		20		
$ h_{fe} $ Small-Signal Common-Emitter Forward Current Transfer Ratio	$V_{CE} = 10 \text{ V}$, $I_C = 1 \text{ A}$, $f = 5 \text{ MHz}$	2		2		2		

NOTES: 5. These parameters must be measured using pulse techniques. $t_w = 300 \mu\text{s}$, duty cycle $\leq 2\%$.

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

thermal characteristics

PARAMETER	MAX	UNIT
$R_{\theta JC}$ Junction-to-Case Thermal Resistance	1	$^\circ\text{C/W}$
$R_{\theta JA}$ Junction-to-Free-Air Thermal Resistance	35	

Typ type		P_{tot} $T_G = 25\text{ }^{\circ}\text{C}$ ($T_C = 100\text{ }^{\circ}\text{C}$) W	V_{CEO} min V	I_{CD} max A	r_{in}	h_{FE} max	@	I_C A
BUY 70 A		75	1000*	10	15			1,0
BUY 70 B		75	800*	10	15			1,0
BUY 70 C		75	500*	10	15			1,0
BUY 71		40	2200*	2				
BDX 31		40	2200*	4				
BDX 32		40	1700*	4				
2N 3439	Siehe Datenblatt Seite 2-301;		See Data Sheet Page 2-301					
2N 3440	Siehe Datenblatt Seite 2-301;		See Data Sheet Page 2-301					
2N 3583	2	35	175	1	40	200		0,5
2N 3584	2	35	250	2	8	140		1
2N 3585	2	35	300	2	8	140		1
2N 3902	4	100	325	2,5	30	90		1
2N 4240	2	35	300	2	6	240		0,75
2N 5157	4	100	400	3,5	30	90		1
2N 5241	4	125	325	5	15	35		2,5
TIP 525	4	(60)	200	5	30	150		2,5
TIP 531	4	(150)	300	15	20	120		7,5
TIP 532	4	(150)	400	15	20	120		7,5
TIP 533	4	(150)	300	15	20	120		7,5
TIP 534	4	(150)	400	15	20	120		7,5
TIP 535	5	(100)	200	7,5	20	100		5
TIP 536	5	(100)	200	7,5	20	100		5
TIP 537	5	(100)	400	7,5	20	100		5
TIP 538	5	(125)	200	15	20	100		7,5
TIP 539	5	(125)	300	15	20	100		7,5
TIP 540	5	(125)	400	15	20	100		7,5

f_T min MHz	I_{CEV} (I_{CEO}) I_{CES} ^(a) mA	V_{CE} V	Gehäuse package	Anwendungen, Bemerkungen applications, remarks
	(1)	1000	TO-3	Für Schalteranwendungen switching applications
	(1)	800	TO-3	
	(1)	500	TO-3	
	1	2200	TO-3	Fernsehanwendung, Horizontal-Ablenkendstufen in Sw TV horizontal deflection black and white
	1	2200	TO-3	Fernsehanwendung, Horizontal-Ablenkendstufen in Farbgeräten Color TV horizontal deflection
	1	1700	TO-3	
10	1	225	TO-66	Für industrielle und militärische Anwendung for industrial and military application
10	1	300	TO-66	
10	1	400	TO-66	
5	0,25	400	TO-3	
15	2	400	TO-66	
2,8	0,5	700	TO-3	
2,5	0,5	400	TO-3	
40	1	250	TO-3	Verstärker, schneller Schalter amplifier, high-speed switch
50	1	300	TO-3	Verstärker, schnelle Schaltanwendung, Netzgeräte amplifier, switch, power supply
50	1	400	TO-3	
50	1	300	TO-3	
50	1	400	TO-3	
10	1	300	TO-3	
10	1	400	TO-3	
10	1	500	TO-3	
10	1	300	TO-3	
10	1	400	TO-3	
10	1	500	TO-3	