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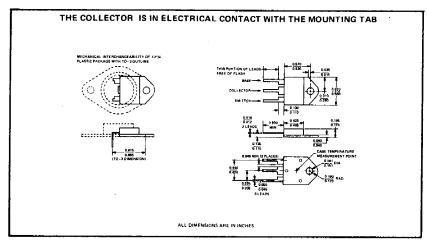
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TYPES TIP34, TIP34A, TIP34B, TIP34C P-N-P SINGLE-DIFFUSED MESA SILICON POWER TRANSISTORS

FOR POWER-AMPLIFIER AND HIGH-SPEED-SWITCHING APPLICATIONS DESIGNED FOR COMPLEMENTARY USE WITH TIP33, TIP33A, TIP33B, TIP33C

- 80 W at 25°C Case Temperature
- 10 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)

Collector-Base Voltage	TIP34 40 V	TIP34A -60 V	TIP34B -80 V	TIP34C -100 V
Collector-Emitter Voltage (See Note 1)	40 V	-60 V	-80 V	-100 V
Emitter-Base Voltage	4-		i V	
Continuous Collector Current	◀		0 A	
Peak Collector Current (See Note 2)	◄		5 A	>
Continuous Base Current	4		A	
Safe Operating Region at (or below) 25°C Case Temperature	◄	— See Fi	gure 5 —	
Continuous Device Dissipation at (or below) 25°C Case			-	
Temperature (See Note 3)	-	80	w	
Continuous Device Dissipation at (or below) 25°C Free-Air				
Temperature (See Note 4)	-	3.5	w	
Unclamped Inductive Load Energy (See Note 5)	◀	62.5	i mJ	
Operating Collector Junction Temperature Range	◄	– –65°C t	o 150°C -	
Storage Temperature Range	-	65°C t	o 150°C -	
Lead Temperature 1/8 Inch from Case for 10 Seconds	-	260	o°c	

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

- This value applies for t_w ≤ 0.3 ms, duty cycle ≤ 10%.
- 3. Derate linearly to 150°C case temperature at the rate of 0.64 W/°C.
- 4. Derate linearly to 150°C free-air temperature at the rate of 28 mW/°C.
- 5. This rating is based on the capability of the transistor to operate safely in the circuit of Figure 2. L = 20 mH, R_{BB2} = 100 Ω , V_{BB2} = 0 V, R_S = 0.1 Ω , V_{CC} = 10 V. Energy \approx 1/2 $I_C^2L/2$.

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

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TYPES TIP34, TIP34A, TIP34B, TIP34C P-N-P SINGLE-DIFFUSED MESA SILICON POWER TRANSISTORS

electrical characteristics at 25°C case temperature

PARAMETER		TENT COMPLE	LONG.	TIP34		TIP34A		TIP34B		TIP34C		
		TEST CONDIT	TEST CONDITIONS MIN MAX		MIN	MAX	MIN	MAX	MIN	MAX	UNIT	
V(BR)CEO	Collector-Emitter Breakdown Voltage	IC = -30 mA, IE	3 = 0,	-40		60		80		-100		٧
†CEO	Collector Cutoff Current		3 = 0 3 = 0		-0.7		-0.7		-0.7		-0.7	mA
CES	Collector Cutoff Current				-0.4		-0.4		0.4		-0.4	mA
IEBO	Emitter Cutoff Current	V _{EB} = -5 V, I _C	; = 0		-1		-1	-	-1		-1	mA
bee	Static Forward Current Transfer Ratio	V _{CE} = -4 V, 10 See Notes 6 and 7		40		40		40		40		
hFE		V _{CE} = -4 V, 1 _C See Notes 6 and 7	; = −3 A,	20	100	20	100	20	100	20	100	
VBE	Base-Emitter Voltage	V _{CE} = -4 V, I _C See Notes 6 and 7			-1.6		1.6		-1.6		-1.6	V
*BE		V _{CE} = −4 V, I _C See Notes 6 and 7	-10 A,		-3		– 3		-3		-3	
	Collector-Emitter Saturation Voltage	I _B = −0.3 A, I _C See Notes 6 and 7	; = -3 A,		1		-1		-1		-1	v
VCE (sat)		1 _B ≠2.5 A, 1 _C See Notes 6 and 7	; =10 A,		-4		-4		-4		4	L.
h _{fe}	Small-Signal Common-Emitter Forward Current Transfer Ratio	V _{CE} = −10 V, I _C f = 1 kHz	; = -0.5 A,	20		20		20		20		
h _{fe}	Small-Signal Common-Emitter Forward Current Transfer Ratio	V _{CE} = -10 V, I _C f = 1 MHz	; = -0.5 A,	3		3		3		3		

NOTES: 6. These parameters must be measured using pulse techniques, $t_{\rm W}$ = 300 μ s, duty cycle \le 2%.

thermal characteristics

Г	PARAMETER	MAX	UNIT
R	BOJC Junction-to-Case Thermal Resistance	1.56	°C/W
R	B _{BJA} Junction-to-Free-Air Thermal Resistance	35.7	0,11

switching characteristics at 25°C case temperature

PARAMETER		TYP	UNIT		
ton Turn-On Time	I _C = -6 A,	IB(1) =0.6 A,	I _{B(2)} = 0.6 A,	0.4	цѕ
toff Turn-Off Time	$V_{BE(off)} = 4 V$	$R_L = 5 \Omega$,	See Figure 1	0.7	" ا

[†]Voltage and current values shown are nominal; exact values vary slightly with transistor parameters.

^{7.} These parameters are measured with voltage-sensing contacts separate from the current-carrying contacts.