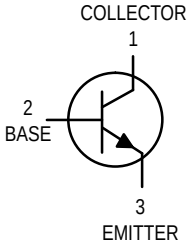
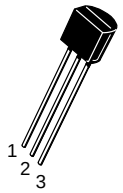
Amplifier Transistors
NPN Silicon

BC182,A,B
BC183
BC184





CASE 29–04, STYLE 17
TO–92 (TO–226AA)

MAXIMUM RATINGS

Rating	Symbol	BC 182	BC 183	BC 184	Unit
Collector–Emitter Voltage	V_{CEO}	50	30	30	Vdc
Collector–Base Voltage	V_{CBO}	60	45	45	Vdc
Emitter–Base Voltage	V_{EBO}	6.0			Vdc
Collector Current — Continuous	I_C	100			mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	350 2.8			mW mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	1.0 8.0			Watts mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	–55 to +150			°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	357	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	125	°C/W

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Collector–Emitter Breakdown Voltage		$V_{(BR)CEO}$				V
(I_C = 2.0 mA, I_B = 0)	BC182		50	—	—	
	BC183		30	—	—	
	BC184		30	—	—	
Collector–Base Breakdown Voltage		$V_{(BR)CBO}$				V
(I_C = 10 μA, I_E = 0)	BC182		60	—	—	
	BC183		45	—	—	
	BC184		45	—	—	
Emitter–Base Breakdown Voltage (I_E = 100 μA, I_C = 0)		$V_{(BR)EBO}$	6.0	—	—	V
Collector Cutoff Current		I_{CBO}				nA
(V_{CB} = 50 V, V_{BE} = 0)	BC182		—	0.2	15	
(V_{CB} = 30 V, V_{BE} = 0)	BC183		—	0.2	15	
	BC184		—	0.2	15	
Emitter–Base Leakage Current (V_{EB} = 4.0 V, I_C = 0)		I_{EBO}	—	—	15	nA

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted) (Continued)

Characteristic		Symbol	Min	Typ	Max	Unit
ON CHARACTERISTICS						
DC Current Gain		h_{FE}				—
(I_C = 10 μA, V_{CE} = 5.0 V)	BC182		40	—	—	
	BC183		40	—	—	
	BC184		100	—	—	
(I_C = 2.0 mA, V_{CE} = 5.0 V)	BC182		120	—	500	
	BC183		120	—	800	
	BC184		250	—	800	
(I_C = 100 mA, V_{CE} = 5.0 V)	BC182		80	—	—	
	BC183		80	—	—	
	BC184		130	—	—	
Collector–Emitter On Voltage		$V_{CE(sat)}$				V
(I_C = 10 mA, I_B = 0.5 mA)			—	0.07	0.25	
(I_C = 100 mA, I_B = 5.0 mA)(1)			—	0.2	0.6	
Base–Emitter Saturation Voltage (I_C = 100 mA, I_B = 5.0 mA)(1)		$V_{BE(sat)}$	—	—	1.2	V
Base–Emitter On Voltage		$V_{BE(on)}$				V
(I_C = 100 μA, V_{CE} = 5.0 V)			—	0.5	—	
(I_C = 2.0 mA, V_{CE} = 5.0 V)			0.55	0.62	0.7	
(I_C = 100 mA, V_{CE} = 5.0 V)(1)			—	0.83	—	
DYNAMIC CHARACTERISTICS						
Current–Gain — Bandwidth Product		f_T				MHz
(I_C = 0.5 mA, V_{CE} = 3.0 V, f = 100 MHz)	BC182		—	100	—	
	BC183		—	120	—	
	BC184		—	140	—	
(I_C = 10 mA, V_{CE} = 5.0 V, f = 100 MHz)	BC182		150	200	—	
	BC183		150	240	—	
	BC184		150	280	—	
Common Base Output Capacitance (V_{CB} = 10 V, I_C = 0, f = 1.0 MHz)		C_{ob}	—	—	5.0	pF
Common Base Input Capacitance (V_{EB} = 0.5 V, I_C = 0, f = 1.0 MHz)		C_{ib}	—	8.0	—	pF
Small–Signal Current Gain		h_{fe}				—
(I_C = 2.0 mA, V_{CE} = 5.0 V, f = 1.0 kHz)	BC182		125	—	500	
	BC183		125	—	900	
	BC184		240	—	900	
	BC182A		125	—	260	
	BC182B		240	—	500	
Noise Figure		NF				dB
(I_C = 0.2 mA, V_{CE} = 5.0 V, R_S = 2.0 kΩ, f = 1.0 kHz)						
(I_C = 0.2 mA, V_{CE} = 5.0 V, R_S = 2.0 kΩ, f = 1.0 kHz, f = 200 Hz)	BC184		—	2.0	4.0	
	BC182		—	2.0	10	
	BC183		—	2.0	10	
	BC184		—	2.0	4.0	

1. Pulse Test: Tp 300 s, Duty Cycle 2.0%.

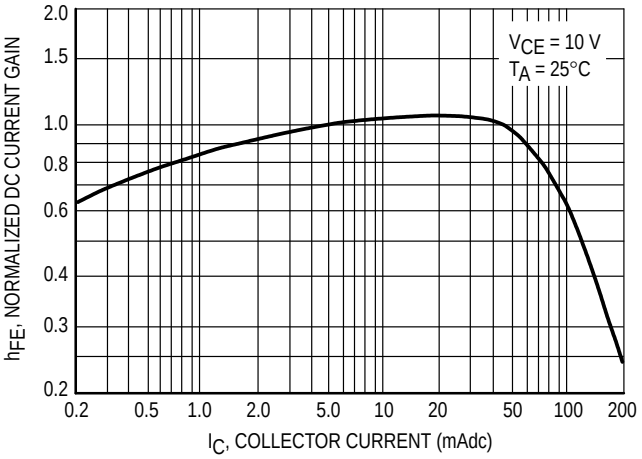


Figure 1. Normalized DC Current Gain

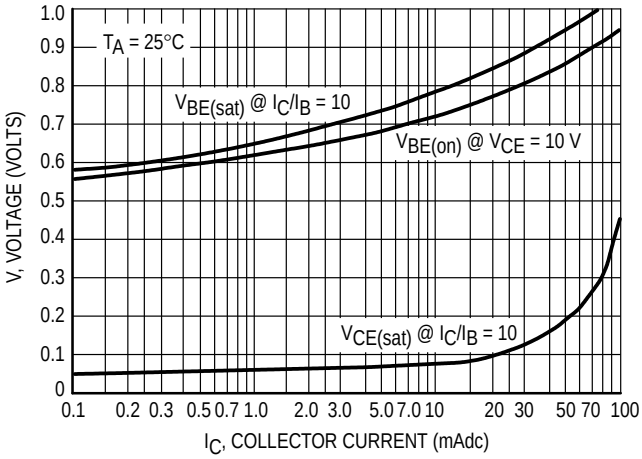


Figure 2. “Saturation” and “On” Voltages

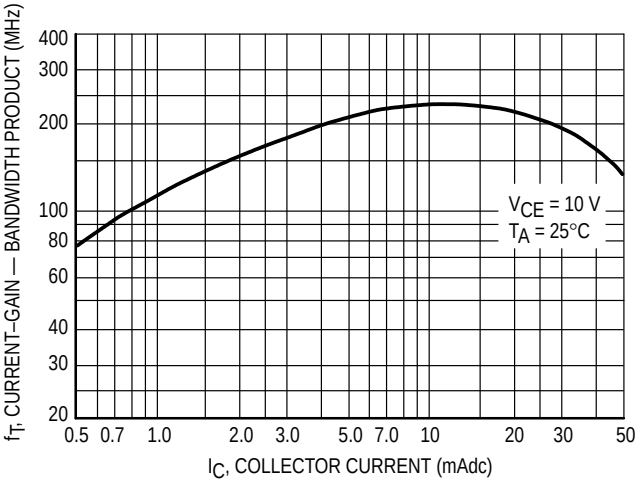


Figure 3. Current–Gain — Bandwidth Product

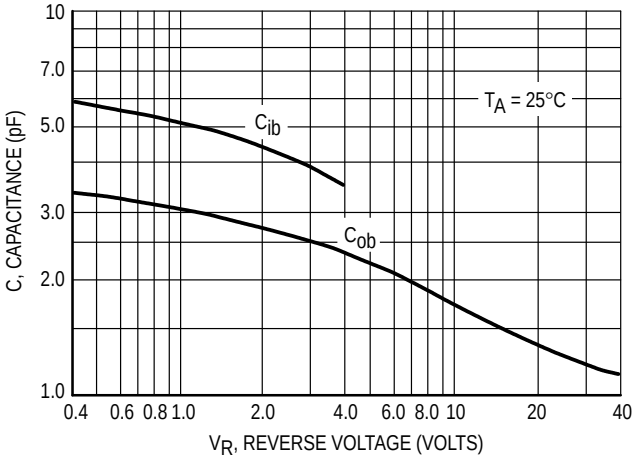


Figure 4. Capacitances

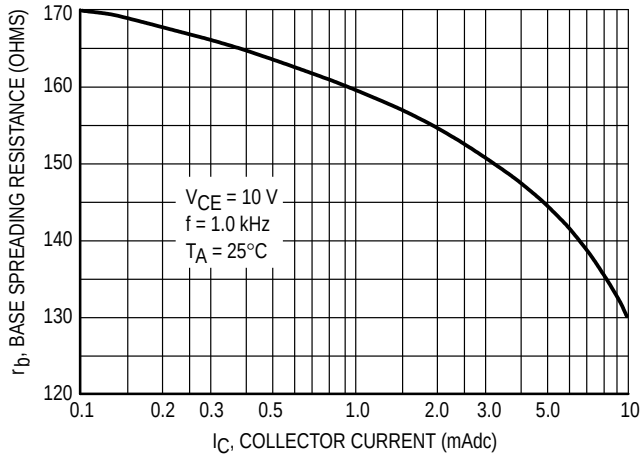
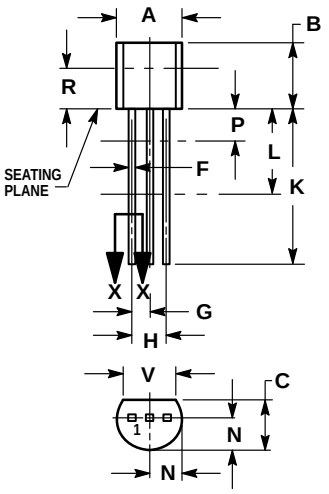
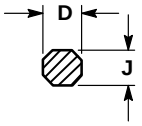


Figure 5. Base Spreading Resistance

PACKAGE DIMENSIONS





SECTION X–X

NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. DIMENSION F APPLIES BETWEEN P AND L. DIMENSION D AND J APPLY BETWEEN L AND K MINIMUM. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.175	0.205	4.45	5.20
B	0.170	0.210	4.32	5.33
C	0.125	0.165	3.18	4.19
D	0.016	0.022	0.41	0.55
F	0.016	0.019	0.41	0.48
G	0.045	0.055	1.15	1.39
H	0.095	0.105	2.42	2.66
J	0.015	0.020	0.39	0.50
K	0.500	—	12.70	—
L	0.250	—	6.35	—
N	0.080	0.105	2.04	2.66
P	—	0.100	—	2.54
R	0.115	—	2.93	—
V	0.135	—	3.43	—

STYLE 17:
PIN 1. COLLECTOR
2. BASE
3. EMITTER

CASE 029–04
(TO–226AA)
ISSUE AD

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BC182, BC182A, BC182B

Amplifier Transistors

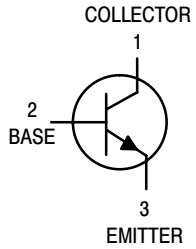
NPN Silicon

ON Semiconductor®

http://onsemi.com

Features

- Pb−Free Package is Available*



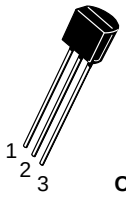
MAXIMUM RATINGS

Rating	Symbol	BC182	Unit
Collector−Emitter Voltage	V_{CEO}	50	Vdc
Collector−Base Voltage	V_{CBO}	60	Vdc
Emitter−Base Voltage	V_{EBO}	6.0	Vdc
Collector Current − Continuous	I_C	100	mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	350 2.8	mW mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	1.0 8.0	W mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−55 to +150	°C

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

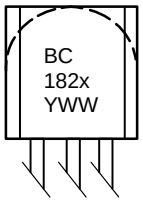
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	357	°C/W
Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	125	°C/W



TO−92
CASE 29
STYLE 17

MARKING DIAGRAM



BC	Specific Device Code
x	A or B
Y	= Year
WW	= Work Week

ORDERING INFORMATION

Device	Package	Shipping†
BC182	TO−92	5000 Units / Box
BC182G	TO−92 (Pb−Free)	5000 Units / Box
BC182A	TO−92	5000 Units / Box
BC182B	TO−92	5000 Units / Box
BC182BRL1	TO−92	2000 /Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Collector−Emitter Breakdown Voltage (I_C = 2.0 mA, I_B = 0)		$V_{(BR)CEO}$	50	–	–	V
Collector−Base Breakdown Voltage (I_C = 10 μA, I_E = 0)		$V_{(BR)CBO}$	60	–	–	V
Emitter−Base Breakdown Voltage (I_E = 100 μA, I_C = 0)		$V_{(BR)EBO}$	6.0	–	–	V
Collector Cutoff Current (V_{CB} = 50 V, V_{BE} = 0)		I_{CBO}	–	0.2	15	nA
Emitter−Base Leakage Current (V_{EB} = 4.0 V, I_C = 0)		I_{EBO}	–	–	15	nA
ON CHARACTERISTICS						
DC Current Gain		h_{FE}				–
(I_C = 10 μA, V_{CE} = 5.0 V)	BC182		40	–	–	
(I_C = 2.0 mA, V_{CE} = 5.0 V)	BC182		120	–	500	
	BC182A		120		220	
	BC182B		180	–	500	
(I_C = 100 mA, V_{CE} = 5.0 V)	BC182		80		–	
Collector−Emitter On Voltage		$V_{CE(sat)}$				V
(I_C = 10 mA, I_B = 0.5 mA)			–	0.07	0.25	
(I_C = 100 mA, I_B = 5.0 mA) (Note 1)			–	0.2	0.6	
Base−Emitter Saturation Voltage (I_C = 100 mA, I_B = 5.0 mA) (Note 1)		$V_{BE(sat)}$	–	–	1.2	V
Base−Emitter On Voltage		$V_{BE(on)}$				V
(I_C = 100 μA, V_{CE} = 5.0 V)			–	0.5	–	
(I_C = 2.0 mA, V_{CE} = 5.0 V)			0.55	0.62	0.7	
(I_C = 100 mA, V_{CE} = 5.0 V) (Note 1)			–	0.83	–	
DYNAMIC CHARACTERISTICS						
Current−Gain — Bandwidth Product		f_T				MHz
(I_C = 0.5 mA, V_{CE} = 3.0 V, f = 100 MHz)			–	100	–	
(I_C = 10 mA, V_{CE} = 5.0 V, f = 100 MHz)			150	200	–	
Common Base Output Capacitance (V_{CB} = 10 V, I_C = 0, f = 1.0 MHz)		C_{ob}	–	–	5.0	pF
Common Base Input Capacitance (V_{EB} = 0.5 V, I_C = 0, f = 1.0 MHz)		C_{ib}	–	8.0	–	pF
Small−Signal Current Gain		h_{fe}				–
(I_C = 2.0 mA, V_{CE} = 5.0 V, f = 1.0 kHz)	BC182		125	–	500	
	BC182A		125	–	260	
	BC182B		240	–	500	
Noise Figure (I_C = 0.2 mA, V_{CE} = 5.0 V, R_S = 2.0 kΩ, f = 1.0 kHz)		NF	–	2.0	10	dB

1. Pulse Test: Tp 300 s, Duty Cycle 2.0%.

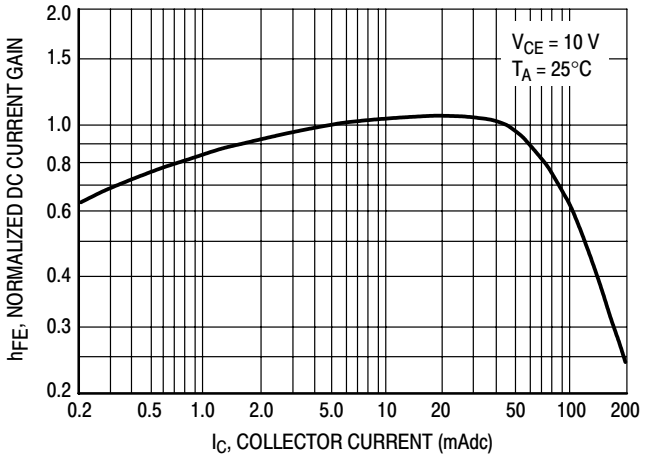


Figure 1. Normalized DC Current Gain

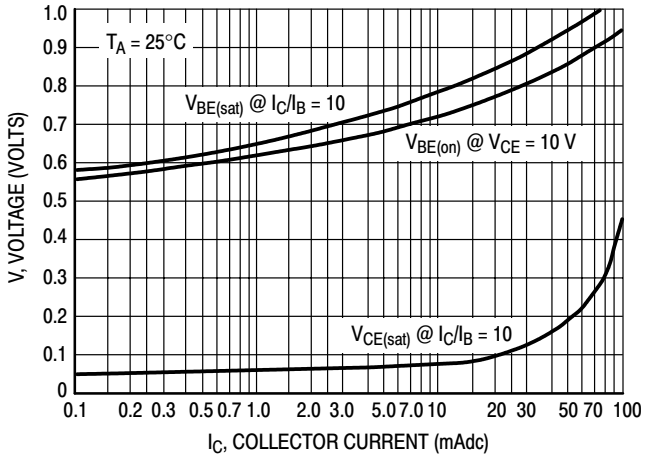


Figure 1. “Saturation” and “On” Voltages

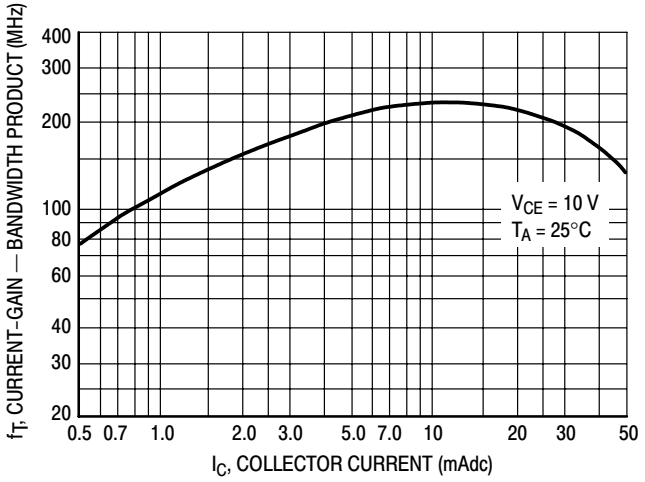


Figure 2. Current−Gain — Bandwidth Product

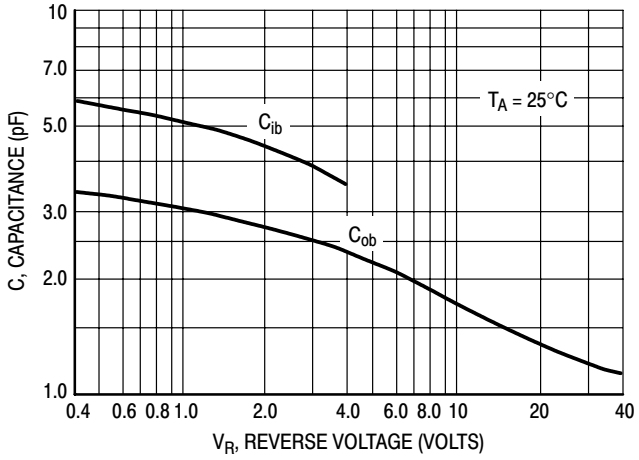


Figure 3. Capacitances

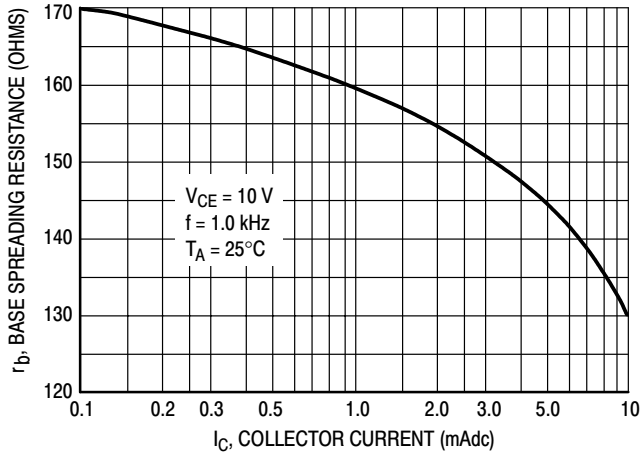
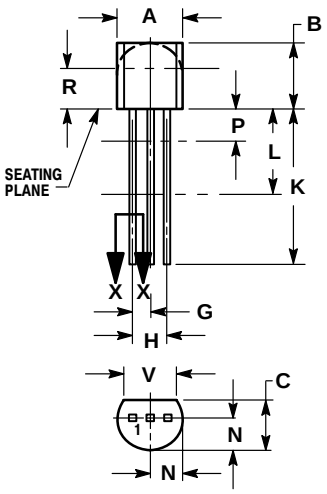
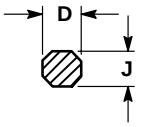


Figure 4. Base Spreading Resistance

PACKAGE DIMENSIONS

TO−92
TO−226AA
CASE 29−11
ISSUE AL





SECTION X−X

NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.175	0.205	4.45	5.20
B	0.170	0.210	4.32	5.33
C	0.125	0.165	3.18	4.19
D	0.016	0.021	0.407	0.533
G	0.045	0.055	1.15	1.39
H	0.095	0.105	2.42	2.66
J	0.015	0.020	0.39	0.50
K	0.500	---	12.70	---
L	0.250	---	6.35	---
N	0.080	0.105	2.04	2.66
P	---	0.100	---	2.54
R	0.115	---	2.93	---
V	0.135	---	3.43	---

STYLE 17:
PIN 1. COLLECTOR
2. BASE
3. EMITTER

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