

2N1479, 2N1480, 2N1481, 2N1482 2N1479S, 2N1480S, 2N1481S,

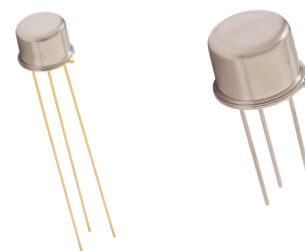


NPN Medium Power Silicon Transistor

Rev. V3

Features

- Available in JAN Quality Level per MIL-PRF-19500/207
- TO-205AA (TO-5) and TO-205AD (TO-39) Packages
- “S” Suffix Denotes TO-205AD (TO-39) Package Style
- General Purpose Transistors for Medium Power Applications Requiring High Frequency Switching



Electrical Characteristics (25°C unless otherwise specified)

Parameter	Test Conditions	Symbol	Units	Min.	Max.
Collector - Emitter Breakdown Voltage	$I_E = 50 \text{ mA dc}$ 2N1479, 2N1481 2N1480, 2N1482	$V_{(BR)CEO}$	V dc	40 50	—
Collector - Emitter Breakdown Voltage	$I_C = 0.25 \text{ mA dc}$, $V_{EB} = 1.5 \text{ V dc}$ 2N1479, 2N1481 2N1480, 2N1482	$V_{(BR)CEX}$	V dc	60 100	—
Emitter - Base Cutoff Current	$V_{EB} = 12 \text{ V dc}$	I_{EBO}	$\mu\text{A dc}$	—	10
Collector - Emitter Cutoff Current	$V_{CE} = 60 \text{ V dc}$	I_{CEO} I_{CEO}	$\mu\text{A dc}$	—	10
Collector - Base Cutoff Current	$V_{CB} = 30 \text{ V dc}$ 2N1479, 2N1481 $V_{CB} = 50 \text{ V dc}$ 2N1480, 2N1482	I_{CBO1}	$\mu\text{A dc}$	—	5 5
Forward-Current Transfer Ratio	$I_C = 200 \text{ mA dc}$; $V_{CE} = 4 \text{ V dc}$ 2N1479, 2N1480 2N1481, 2N1482	h_{FE1}		20 35	60 100
Collector - Base Cutoff Current	$T_A = 150^\circ\text{C}$ $V_{CB} = 30 \text{ V dc}$ 2N1479, 2N1481 $V_{CB} = 50 \text{ V dc}$ 2N1480, 2N1482	I_{CBO2}	mA dc	—	0.75 0.75
Forward-Current Transfer Ratio	$T_A = -55^\circ\text{C}$ $I_C = 200 \text{ mA dc}$, $V_{CE} = 4 \text{ V dc}$ 2N1479, 2N1480 2N1481, 2N1482	h_{FE2}		10 17	—
Collector-Emitter Saturation Voltage	$I_C = 200 \text{ mA dc}$ $I_B = 20 \text{ mA dc}$, 2N1479, 2N1480 $I_B = 10 \text{ mA dc}$, 2N1481, 2N1482	$V_{CE(SAT)}$	V dc	—	0.75 0.75
Base-Emitter Voltage (unsaturated)	$I_C = 200 \text{ mA dc}$, $V_{CE} = 4 \text{ V dc}$	$V_{BE(on)}$	V dc	—	1.5
Pulse Response	$R_C = 59 \Omega$, $V_{CC} = 12 \text{ V dc}$, $I_{B(0)} = I_{B(2)} = 8.5 \text{ mA dc}$ $I_{B(1)} = 20 \text{ mA dc}$	$t_{on} + t_{off}$	μs	—	25
Small-Signal, Short-Circuit, Forward-Current Transfer Ratio Cut Off Frequency	$I_C = 5 \text{ mA dc}$, $V_{CB} = 28 \text{ V dc}$	f_{ab}	kHz	800	—

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Absolute Maximum Ratings (25°C unless otherwise specified)

Ratings	Symbol	Value
Collector - Emitter Voltage 2N1479, 2N1481 2N1480, 2N1482	V_{CEO}	40 V dc 55 V dc
Collector - Emitter Voltage 2N1479, 2N1481 2N1480, 2N1482	V_{CEX}	60 V dc 100 V dc
Collector - Base Voltage 2N1479, 2N1481 2N1480, 2N1482	V_{CBO}	60 V dc 100 V dc
Emitter - Base Voltage	V_{EBO}	12 V dc
Collector Current	I_C	1.5 A dc
Base Current	I_B	1.0 A dc
Total Power Dissipation @ $T_A = +25^\circ\text{C}$	$P_T^{(1)}$	1.0 W
Operating & Storage Temperature Range	T_{OP}, T_{STG}	-65°C to +200°C

(1) This power dissipation is for 1,000 hours expected life at $T_A = +25^\circ\text{C}$.

Thermal Characteristics

Characteristics	Symbol	Max. Value
Thermal Resistance Junction to Case	$R_{\theta JC}$	35°C/W

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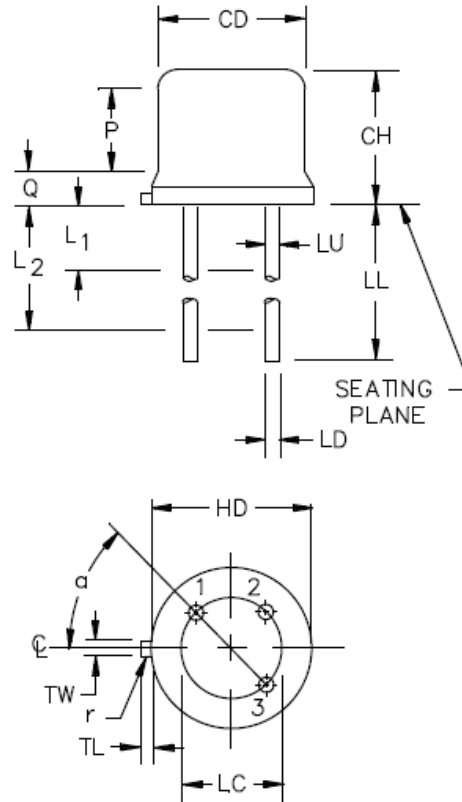


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Outline Drawing: TO-205AA, TO-205AD Package Types

Symbol	Dimensions				Note
	Inches		Millimeters		
	Min	Max	Min	Max	
CD	.305	.335	7.75	8.51	3
CH	.240	.260	6.10	6.60	
HD	.335	.370	8.51	9.40	
LC	.200 TP		5.08 TP		4
LD	.016	.019	0.41	0.48	5, 6
LL	See notes 6, 7, and 8				
LU	.016	.019	0.41	0.48	5, 6
L ₁		.050		1.27	5, 6
L ₂	.250		6.35		5, 6
P	.100		2.54		9
Q		.030		0.76	3
TL	.029	.045	0.74	1.14	10, 11
TW	.028	.034	0.71	0.86	10
r		.010		0.25	12
α	45° TP		45° TP		4



NOTES:

- Dimensions are in inches. Millimeters are given for general information only.
- Lead 1 = emitter, lead 2 = base, lead 3 = collector. The collector shall be internally connected to the case.
- CD shall not vary more than .010 inch (0.25 mm) in zone P. This zone is controlled for automatic handling.
- Leads at gauge plane $.054 +.001 -.000$ inch ($1.37 +0.03 -.000$ mm) below seating plane shall be within .007 inch (0.18 mm) radius of true position (TP) at maximum material condition (MMC) relative to tab at MMC. The device may be measured by direct methods or by gauging procedure.
- Dimension LU applies between L₁ and L₂. Dimension LD applies between L₂ and LL minimum. Diameter is uncontrolled in and beyond LL minimum.
- All three leads.
- For the modified TO-205AA (formerly TO-5) package (PINs without the S suffix), dimension LL is 1.500 inch (38.10 mm) minimum and 1.750 inch (44.45 mm) maximum.
- For the modified TO-205AD (formerly TO-39) package (PINs with the S suffix), dimension LL is .500 inch (12.70 mm) minimum and .750 inch (19.05 mm) maximum.
- Body contour optional within zone defined by dimensions HD, CD, and Q.
- Beyond r (radius) maximum, dimension TW shall be held for a minimum length of .011 (0.28 mm).
- Dimension TL measured from maximum HD.
- Dimension r (radius) applies to both inside corners of tab.
- In accordance with ASME Y14.5M, diameters are equivalent to Φ x symbology.

FIGURE 1. Physical dimensions and configuration of TO-205AA and TO-205AD package.

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