

## MCR22-6, MCR22-8

### ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
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#### OFF CHARACTERISTICS

Peak Repetitive Forward or Reverse Blocking Current ( $V_{AK} = \text{Rated } V_{DRM} \text{ or } V_{RRM}; R_{GK} = 1 \text{ k}\Omega$ )	$T_C = 25^\circ\text{C}$ $T_C = 110^\circ\text{C}$	$I_{DRM}, I_{RRM}$	– –	– –	10 200 $\mu\text{A}$
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#### ON CHARACTERISTICS

Peak Forward On-State Voltage (Note 2) ( $I_{TM} = 1 \text{ A Peak}$ )		$V_{TM}$	–	1.2	1.7	V
Gate Trigger Current (Continuous dc) (Note 3) ( $V_{AK} = 6 \text{ Vdc}, R_L = 100 \Omega$ )	$T_C = 25^\circ\text{C}$ $T_C = -40^\circ\text{C}$	$I_{GT}$	– –	30 –	200 500	$\mu\text{A}$
Gate Trigger Voltage (Continuous dc) (Note 3) ( $V_{AK} = 7 \text{ Vdc}, R_L = 100 \Omega$ )	$T_C = 25^\circ\text{C}$ $T_C = -40^\circ\text{C}$	$V_{GT}$	– –	– –	0.8 1.2	V
Gate Non-Trigger Voltage ( $V_{AK} = 12 \text{ Vdc}, R_L = 100 \Omega$ )	$T_C = 110^\circ\text{C}$	$V_{GD}$	0.1	–	–	V
Holding Current ( $V_{AK} = 12 \text{ Vdc}, R_{GK} = 1 \text{ k}\Omega$ ) Initiating Current = 20 mA	$T_C = 25^\circ\text{C}$ $T_C = -40^\circ\text{C}$	$I_H$	– –	2.0 –	5.0 10	mA

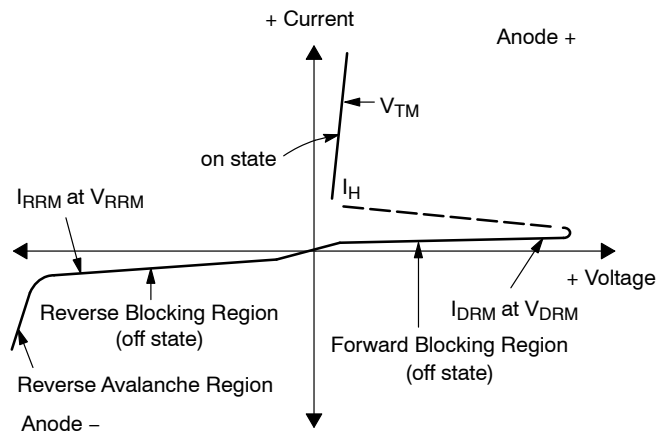
#### DYNAMIC CHARACTERISTICS

Critical Rate of Rise of Off-State Voltage ( $R_{GK} = 1 \text{ k}\Omega$ ) ( $T_C = 110^\circ\text{C}$ )		$dv/dt$	–	25	–	V/ $\mu\text{s}$
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2. Pulse Width = 1.0 ms, Duty Cycle  $\leq 1\%$ .
3.  $R_{GK}$  Current not included in measurement.

### Voltage Current Characteristic of SCR

Symbol	Parameter
$V_{DRM}$	Peak Repetitive Off State Forward Voltage
$I_{DRM}$	Peak Forward Blocking Current
$V_{RRM}$	Peak Repetitive Off State Reverse Voltage
$I_{RRM}$	Peak Reverse Blocking Current
$V_{TM}$	Peak on State Voltage
$I_H$	Holding Current



# MCR22-6, MCR22-8

## CURRENT DERATING

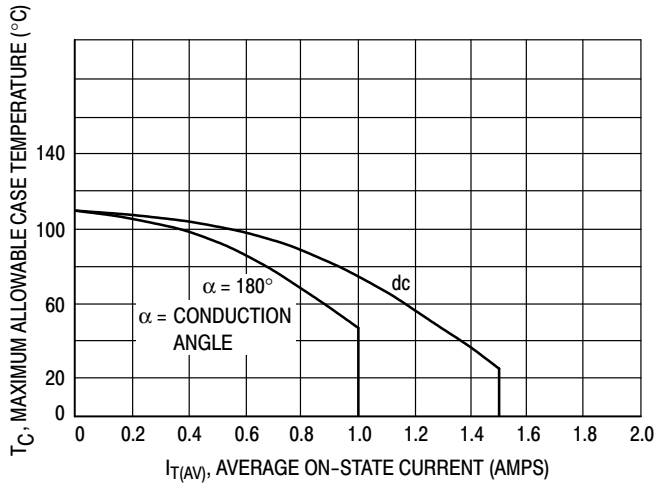


Figure 1. Maximum Case Temperature

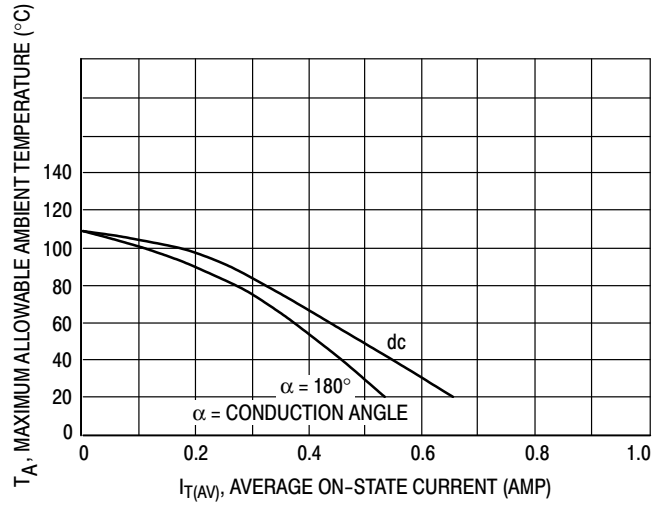


Figure 2. Maximum Ambient Temperature

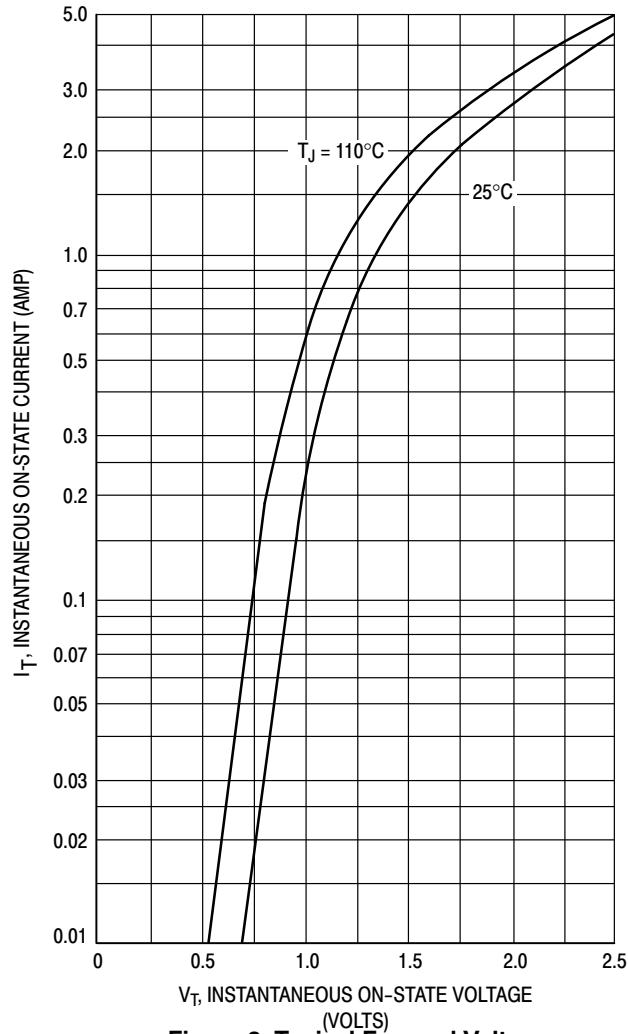


Figure 3. Typical Forward Voltage

# MCR22-6, MCR22-8

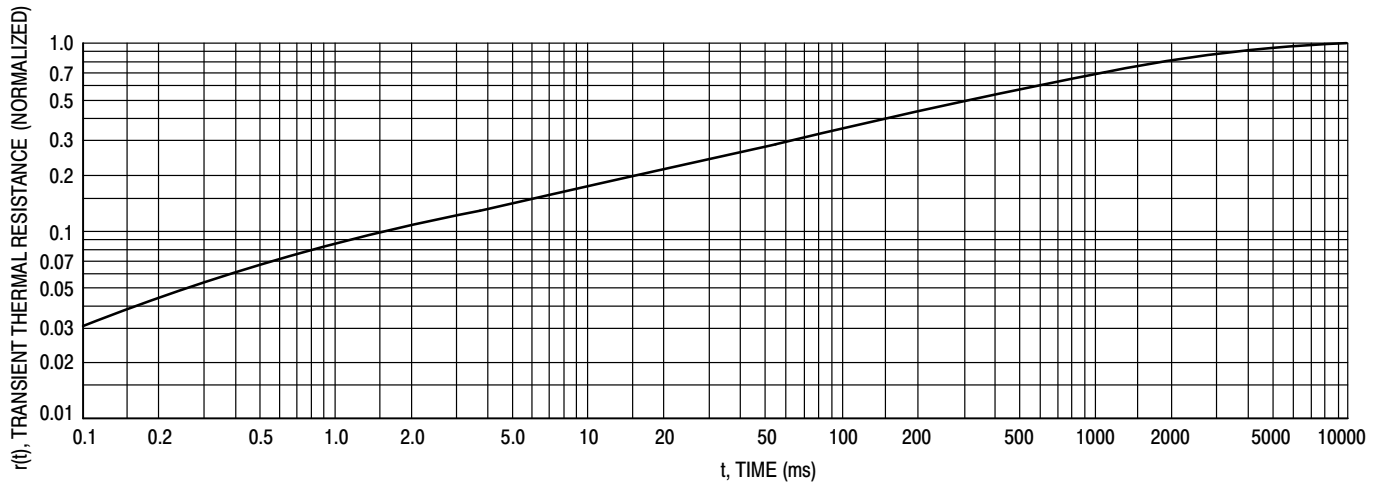


Figure 4. Thermal Response

## TYPICAL CHARACTERISTICS

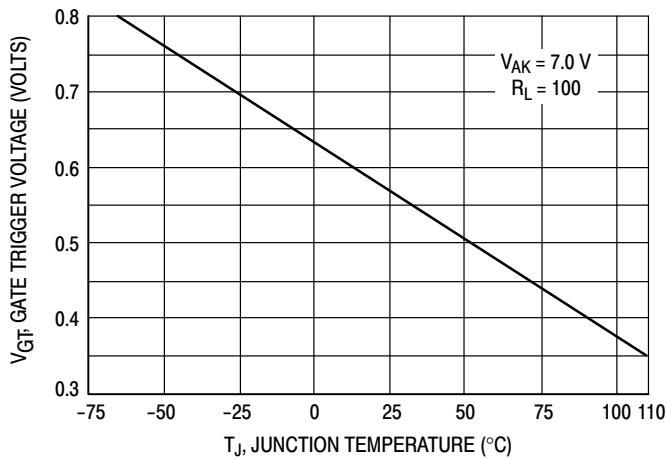


Figure 5. Typical Gate Trigger Voltage

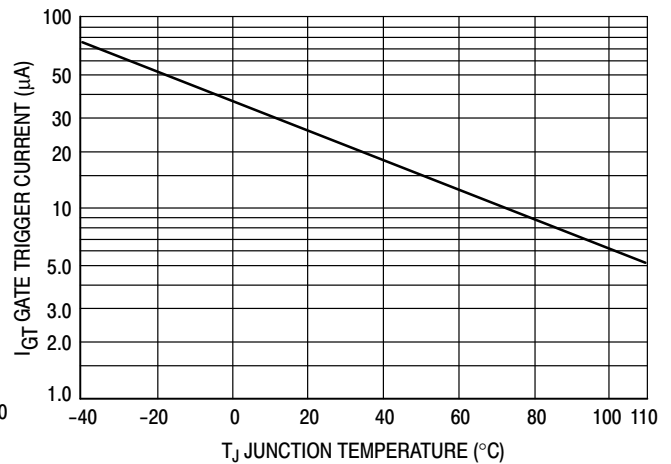


Figure 6. Typical Gate Trigger Current

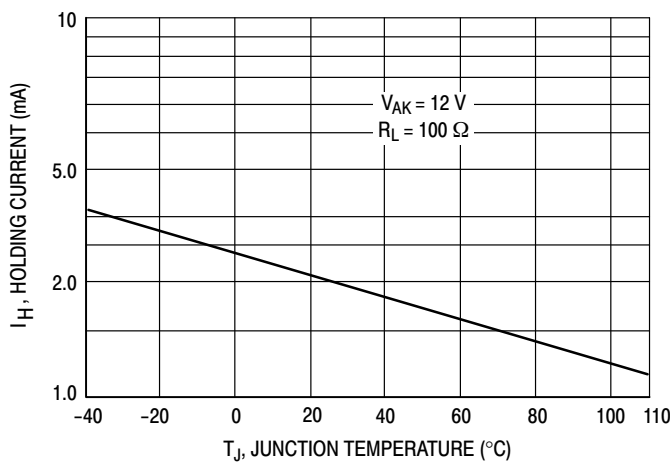


Figure 7. Typical Holding Current

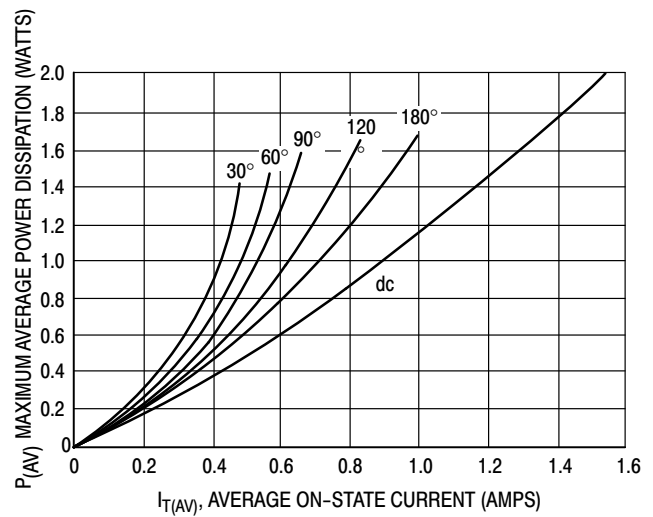


Figure 8. Power Dissipation

## TO-92 EIA RADIAL TAPE IN FAN FOLD BOX OR ON REEL

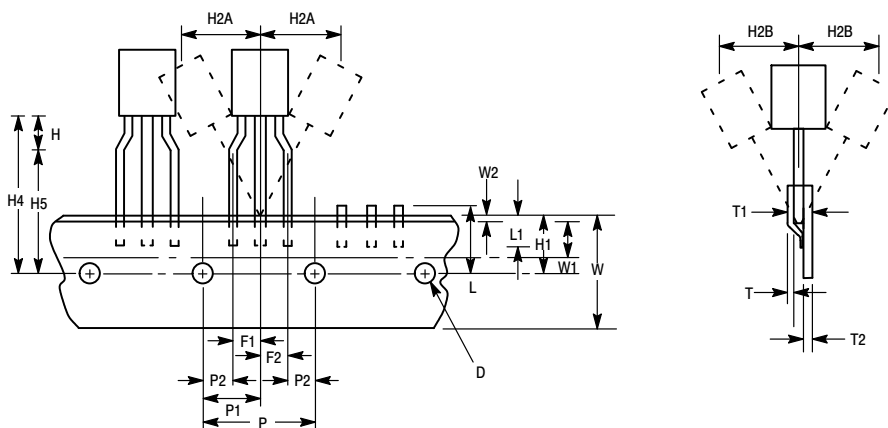


Figure 9. Device Positioning on Tape

Item	Symbol	Specification			
		Inches		Millimeter	
		Min	Max	Min	Max
Tape Feedhole Diameter	D	0.1496	0.1653	3.8	4.2
Component Lead Thickness Dimension	D2	0.015	0.020	0.38	0.51
Component Lead Pitch	F1, F2	0.0945	0.110	2.4	2.8
Bottom of Component to Seating Plane	H	.059	.156	1.5	4.0
Feedhole Location	H1	0.3346	0.3741	8.5	9.5
Deflection Left or Right	H2A	0	0.039	0	1.0
Deflection Front or Rear	H2B	0	0.051	0	1.0
Feedhole to Bottom of Component	H4	0.7086	0.768	18	19.5
Feedhole to Seating Plane	H5	0.610	0.649	15.5	16.5
Defective Unit Clipped Dimension	L	0.3346	0.433	8.5	11
Lead Wire Enclosure	L1	0.09842	–	2.5	–
Feedhole Pitch	P	0.4921	0.5079	12.5	12.9
Feedhole Center to Center Lead	P1	0.2342	0.2658	5.95	6.75
First Lead Spacing Dimension	P2	0.1397	0.1556	3.55	3.95
Adhesive Tape Thickness	T	0.06	0.08	0.15	0.20
Overall Taped Package Thickness	T1	–	0.0567	–	1.44
Carrier Strip Thickness	T2	0.014	0.027	0.35	0.65
Carrier Strip Width	W	0.6889	0.7481	17.5	19
Adhesive Tape Width	W1	0.2165	0.2841	5.5	6.3
Adhesive Tape Position	W2	.0059	0.01968	.15	0.5

## NOTES:

1. Maximum alignment deviation between leads not to be greater than 0.2 mm.
2. Defective components shall be clipped from the carrier tape such that the remaining protrusion (L) does not exceed a maximum of 11 mm.
3. Component lead to tape adhesion must meet the pull test requirements.
4. Maximum non-cumulative variation between tape feed holes shall not exceed 1 mm in 20 pitches.
5. Holddown tape not to extend beyond the edge(s) of carrier tape and there shall be no exposure of adhesive.
6. No more than 1 consecutive missing component is permitted.
7. A tape trailer and leader, having at least three feed holes is required before the first and after the last component.
8. Splices will not interfere with the sprocket feed holes.

## MCR22-6, MCR22-8

### ORDERING & SHIPPING INFORMATION: MCR22 Series Packaging Options, Device Suffix

U.S.	Europe Equivalent	Shipping†	Description of TO-92 Tape Orientation
	MCR22-8RL1	2000 / Tape & Reel	Flat side of TO-92 and adhesive tape visible
	MCR22-8RL1G		
MCR22-6		5000 Units / Box	N/A, Bulk
MCR22-6G			
MCR22-8			
MCR22-8G			
MCR22-6RLRA		2000 / Tape & Reel	Round side of TO-92 and adhesive tape visible
MCR22-6RLRAG			
MCR22-6RLRP		2000 / Tape & Ammo Pack	Flat side of TO-92 and adhesive tape visible
MCR22-6RLRPG			

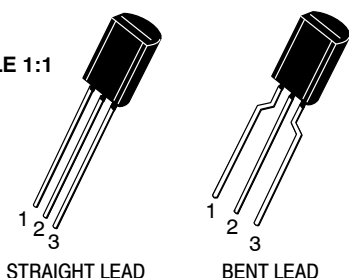
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

# MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS

ON Semiconductor®

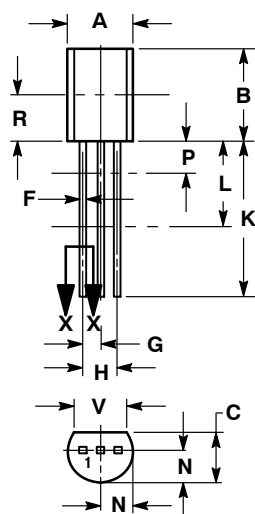


SCALE 1:1

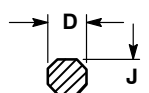


TO-92 (TO-226) 1 WATT  
CASE 29-10  
ISSUE A

DATE 08 MAY 2012



STRAIGHT LEAD

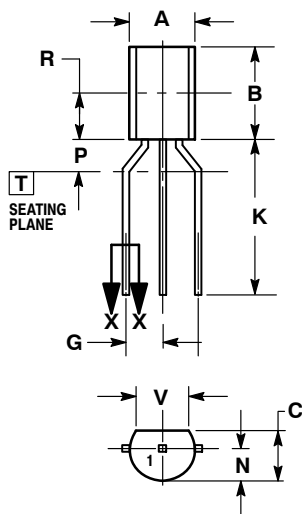


SECTION X-X

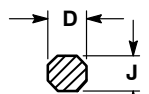
NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1994.
2. CONTROLLING DIMENSION: INCHES.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. DIMENSION F APPLIES BETWEEN DIMENSIONS P AND L. DIMENSIONS D AND J APPLY BETWEEN DIMENSIONS L AND K MINIMUM. THE LEAD DIMENSIONS ARE UNCONTROLLED IN DIMENSION P AND BEYOND DIMENSION K MINIMUM.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.175	0.205	4.44	5.21
B	0.290	0.310	7.37	7.87
C	0.125	0.165	3.18	4.19
D	0.018	0.021	0.46	0.53
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	0.018	0.024	0.46	0.61
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	0.135	---	3.43	---
V	0.135	---	3.43	---



BENT LEAD



SECTION X-X

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: INCHES.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. DIMENSION F APPLIES BETWEEN DIMENSIONS P AND L. DIMENSIONS D AND J APPLY BETWEEN DIMENSIONS L AND K MINIMUM. THE LEAD DIMENSIONS ARE UNCONTROLLED IN DIMENSION P AND BEYOND DIMENSION K MINIMUM.

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**CASE 29-10**  
**ISSUE A**

DATE 08 MAY 2012

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STYLE 16: PIN 1. ANODE 2. GATE 3. CATHODE	STYLE 17: PIN 1. COLLECTOR 2. BASE 3. EMITTER	STYLE 18: PIN 1. ANODE 2. CATHODE 3. NOT CONNECTED	STYLE 19: PIN 1. GATE 2. ANODE 3. CATHODE	STYLE 20: PIN 1. NOT CONNECTED 2. CATHODE 3. ANODE
STYLE 21: PIN 1. COLLECTOR 2. EMITTER 3. BASE	STYLE 22: PIN 1. SOURCE 2. GATE 3. DRAIN	STYLE 23: PIN 1. GATE 2. SOURCE 3. DRAIN	STYLE 24: PIN 1. EMITTER 2. COLLECTOR/ANODE 3. CATHODE	STYLE 25: PIN 1. MT 1 2. GATE 3. MT 2
STYLE 26: PIN 1. V <sub>CC</sub> 2. GROUND 2 3. OUTPUT	STYLE 27: PIN 1. MT 2. SUBSTRATE 3. MT	STYLE 28: PIN 1. CATHODE 2. ANODE 3. GATE	STYLE 29: PIN 1. NOT CONNECTED 2. ANODE 3. CATHODE	STYLE 30: PIN 1. DRAIN 2. GATE 3. SOURCE
STYLE 31: PIN 1. GATE 2. DRAIN 3. SOURCE	STYLE 32: PIN 1. BASE 2. COLLECTOR 3. EMITTER	STYLE 33: PIN 1. RETURN 2. INPUT 3. OUTPUT	STYLE 34: PIN 1. INPUT 2. GROUND 3. LOGIC	STYLE 35: PIN 1. GATE 2. COLLECTOR 3. EMITTER

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