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NYC008-6JG

Sensitive Gate Silicon Controlled Rectifiers

Reverse Blocking Thyristors

PNPN devices designed for high volume, line-powered consumer applications such as relay and lamp drivers, small motor controls, gate drivers for larger thyristors, and sensing and detection circuits. Supplied in an inexpensive plastic TO-226AA package which is readily adaptable for use in automatic insertion equipment.

Features

- Sensitive Gate Allows Triggering by Microcontrollers and Other Logic Circuits
- Blocking Voltage to 600 V
- On-State Current Rating of 0.8 A RMS at 80°C
- High Surge Current Capability – 10 A
- Minimum and Maximum Values of IGT, VGT and IH Specified for Ease of Design
- Immunity to dV/dt – 50 V/ μ sec Minimum at 110°C
- Glass-Passivated Surface for Reliability and Uniformity
- These are Pb-Free Devices



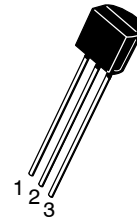
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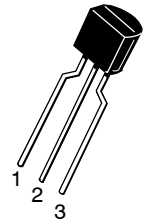
SCRs
0.8 A RMS
600 V



TO-92
CASE 29
STYLE 10

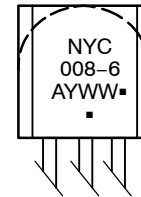


STRAIGHT LEAD
BULK PACK



BENT LEAD
TAPE & REEL
AMMO PACK

MARKING DIAGRAM



A = Assembly Location

Y = Year

WW = Work Week

▪ = Pb-Free Package

(Note: Microdot may be in either location)

PIN ASSIGNMENT

1	Cathode
2	Gate
3	Anode

ORDERING INFORMATION

See detailed ordering and shipping information on page 5 of this data sheet.

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

NYC008-6JG

MAXIMUM RATINGS (T_J = 25°C unless otherwise noted)

Rating	Symbol	Value	Unit
Peak Repetitive Off-State Voltage (Notes 1 and 2) (T _J = -40 to 110°C, Sine Wave, 50 to 60 Hz; R _{GK} = 1 kΩ)	V _{DRM} , V _{RRM}	600	V
On-State RMS Current, (T _C = 80°C) 180° Conduction Angles	I _{T(RMS)}	0.8	A
Peak Non-Repetitive Surge Current, (1/2 Cycle, Sine Wave, 60 Hz, T _J = 25°C)	I _{TSM}	10	A
Circuit Fusing Consideration, (t = 8.3 ms)	I ² t	0.415	A ² s
Forward Peak Gate Power, (T _A = 25°C, Pulse Width ≤ 1.0 μs)	P _{GM}	0.1	W
Forward Average Gate Power, (T _A = 25°C, t = 8.3 ms)	P _{G(AV)}	0.10	W
Forward Peak Gate Current, (T _A = 25°C, Pulse Width ≤ 1.0 μs)	I _{GM}	1.0	A
Reverse Peak Gate Voltage, (T _A = 25°C, Pulse Width ≤ 1.0 μs)	V _{GRM}	5.0	V
Operating Junction Temperature Range @ Rate V _{RRM} and V _{DRM}	T _J	-40 to 110	°C
Storage Temperature Range	T _{stg}	-40 to 150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

- V_{DRM} and V_{RRM} for all types can be applied on a continuous basis. Ratings apply for zero or negative gate voltage; however, positive gate voltage shall not be applied concurrent with negative potential on the anode. Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded.
- See ordering information for exact device number options.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Case Junction-to-Ambient	R _{θJC} R _{θJA}	75 200	°C/W
Lead Solder Temperature (< 1/16" from case, 10 secs max)	T _L	260	°C

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

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Peak Repetitive Forward or Reverse Blocking Current (Note 3) (V _D = Rated V _{DRM} and V _{RRM} ; R _{GK} = 1 kΩ)	I _{DRM} , I _{RRM}	- -	10 100	μA

ON CHARACTERISTICS

Peak Forward On-State Voltage* (I _{TM} = 1.0 A Peak @ T _A = 25°C)	V _{TM}	-	1.7	V
Gate Trigger Current (Note 4) T _C = 25°C (V _{AK} = 7.0 Vdc, R _L = 100 Ω)	I _{GT}	-	200	μA
Holding Current (Note 3) T _C = 25°C (V _{AK} = 7.0 Vdc, Initiating Current = 20 mA, R _{GK} = 1 kΩ) T _C = -40°C	I _H	- -	5.0 10	mA
Latch Current (Note 4) T _C = 25°C (V _{AK} = 7.0 V, I _g = 200 μA) T _C = -40°C	I _L	- -	10 15	mA
Gate Trigger Voltage (Note 4) T _C = 25°C (V _{AK} = 7.0 Vdc, R _L = 100 Ω) T _C = -40°C	V _{GT}	- -	0.8 1.2	V

DYNAMIC CHARACTERISTICS

Critical Rate of Rise of Off-State Voltage (V _D = Rated V _{DRM} , Exponential Waveform, R _{GK} = 1 kΩ, T _J = 110°C)	dV/dt	50	-	V/μs
Critical Rate of Rise of On-State Current (I _{PK} = 20 A; P _w = 10 μsec; diG/dt = 1 A/μsec, I _{gt} = 20 mA)	di/dt	-	50	A/μs

*Indicates Pulse Test: Pulse Width ≤ 1.0 ms, Duty Cycle ≤ 1%.

- R_{GK} = 1000 Ω included in measurement.
- Does not include R_{GK} 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

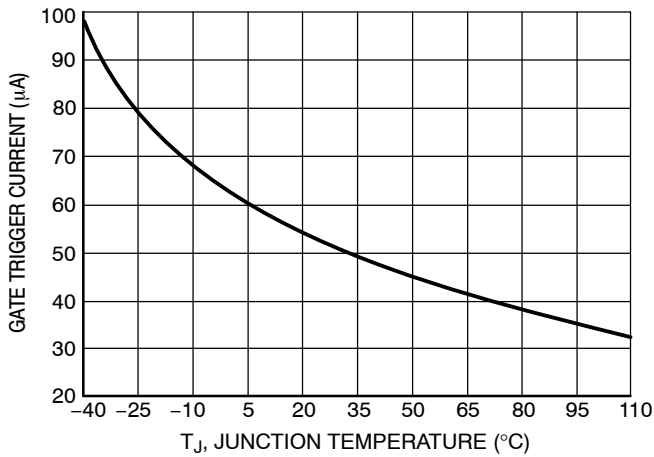
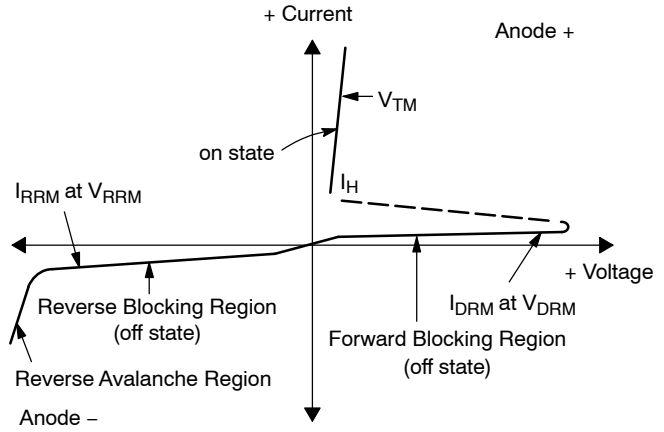


Figure 1. Typical Gate Trigger Current versus Junction Temperature

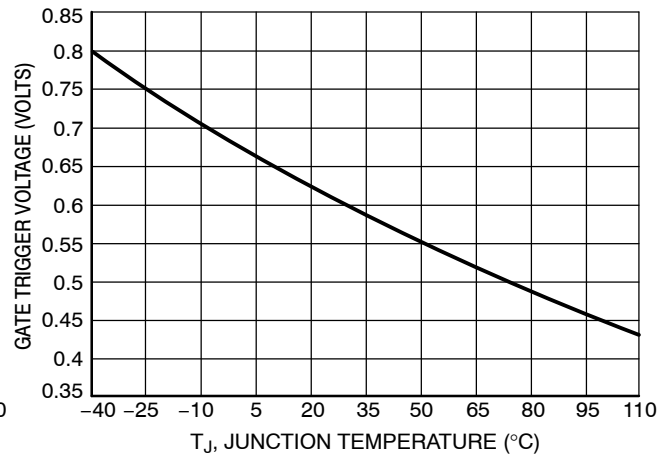


Figure 2. Typical Gate Trigger Voltage versus Junction Temperature

NYC008-6JG

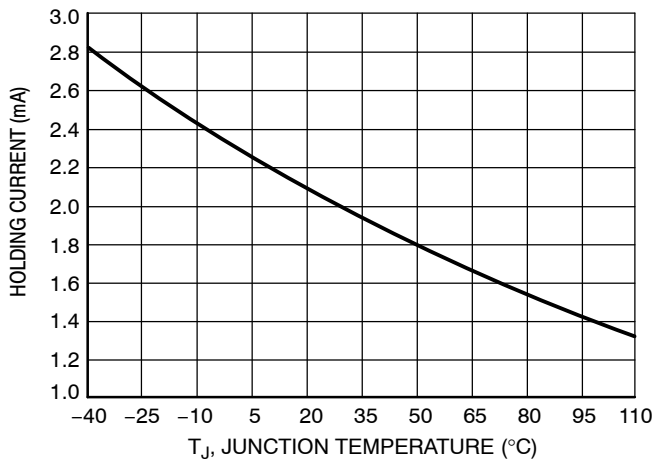


Figure 3. Typical Holding Current versus Junction Temperature

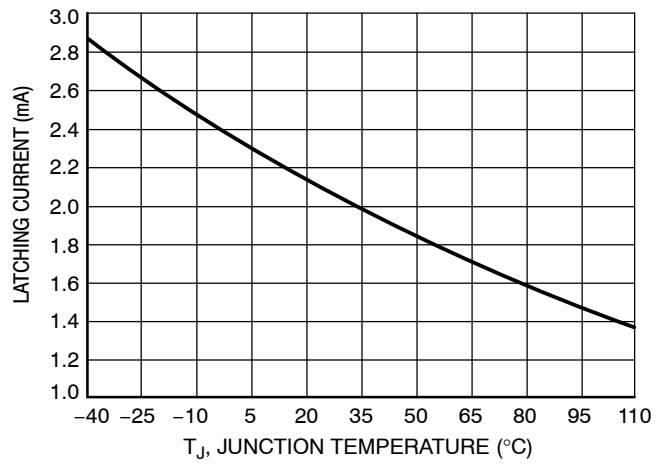


Figure 4. Typical Latching Current versus Junction Temperature

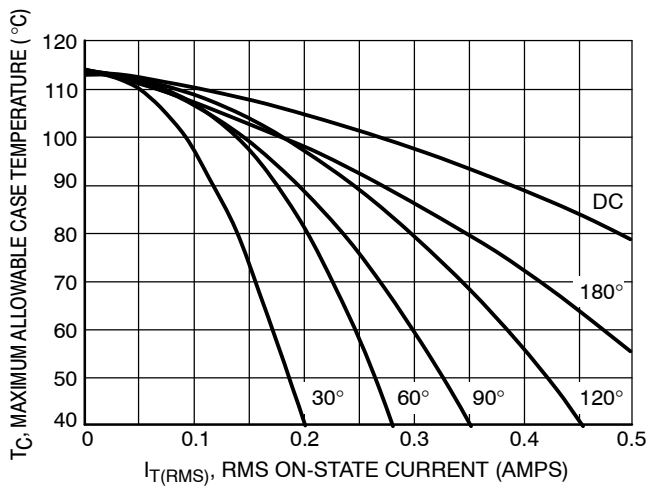


Figure 5. Typical RMS Current Derating

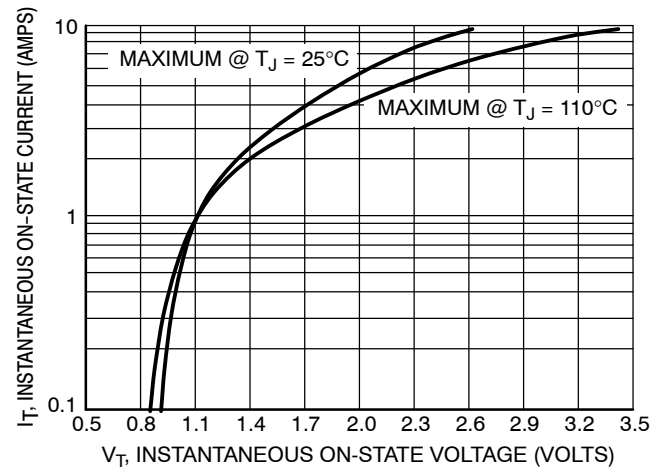


Figure 6. Typical On-State Characteristics

NYC008-6JG

ORDERING INFORMATION

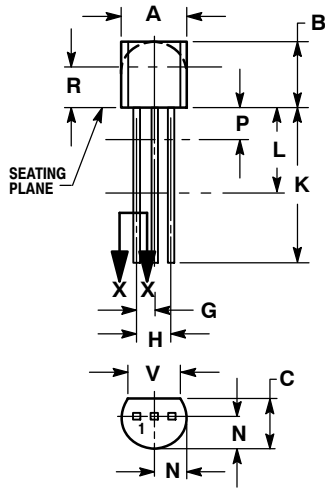
Device	Package Code	Shipping [†]
NYC008-6JG	TO-92 (TO-226) (Pb-Free)	5000 Units / Box
NYC008-6JRLRAG		2000 / Tape & Reel
NYC008-6JRLREG		

[†]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.

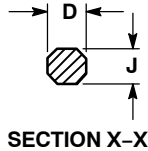
NYC008-6JG

PACKAGE DIMENSIONS

TO-92 (TO-226)
CASE 29-11
ISSUE AM



STRAIGHT LEAD
BULK PACK

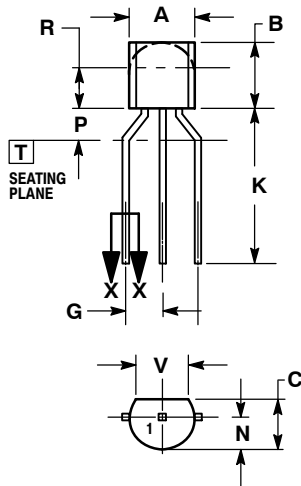


SECTION X-X

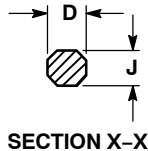
NOTES:

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.

DIM	INCHES		MILLIMETERS	
	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	---



BENT LEAD
TAPE & REEL
AMMO PACK



SECTION X-X

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

DIM	MILLIMETERS	
	MIN	MAX
A	4.45	5.20
B	4.32	5.33
C	3.18	4.19
D	0.40	0.54
G	2.40	2.80
J	0.39	0.50
K	12.70	---
N	2.04	2.66
P	1.50	4.00
R	2.93	---
V	3.43	---

STYLE 10:

1. CATHODE
2. GATE
3. ANODE

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