

# NSR0115CQP6T5G

## Two Dual 15 V, 0.1 A Common Cathode Schottky Diodes

These Schottky barrier diodes are designed for high speed switching applications, circuit protection, and voltage clamping. Extremely low forward voltage reduces conduction loss. Industry leading smallest surface mount package is excellent for hand-held and portable applications where space is limited.

### Features

- Extremely Fast Switching Speed
- Low Forward Voltage – 0.4 V (Max) @  $I_F = 10$  mA
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

### Typical Applications

- Portable Devices (Digital Cameras, MP3 Players ... etc)
- Mobile Phones
- Keyboards
- Low Voltage Motor Control (Disc Drives)

### MAXIMUM RATINGS ( $T_J = 25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	Value	Unit
Reverse Voltage	$V_R$	15	V
Forward Current (DC)	$I_F$	100	mA
Repetitive Peak Forward Current	$I_{FRM}$	0.3	A
Non-Repetitive Peak Forward Current ( $t < 1.0$ s)	$I_{FSM}$	2.0	A

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.

### THERMAL CHARACTERISTICS

Rating	Symbol	Max	Unit
Total Device Dissipation $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$ (Note 1)	260	mW
		2.1	mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$ (Note 1)	480	$^\circ\text{C}/\text{W}$
Total Device Dissipation $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$ (Note 2)	360	mW
		2.9	mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$ (Note 2)	347	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

1. FR-4 @ 10 mm<sup>2</sup>, 1 oz. copper trace, still air.
2. FR-4 @ 100 mm<sup>2</sup>, 1 oz. copper trace, still air.



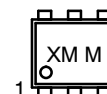
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### MARKING DIAGRAM

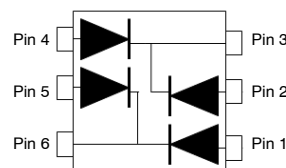


SOT-963  
CASE 527AD



XM = Specific Device Code  
M = Month Code

### PIN CONFIGURATION



### ORDERING INFORMATION

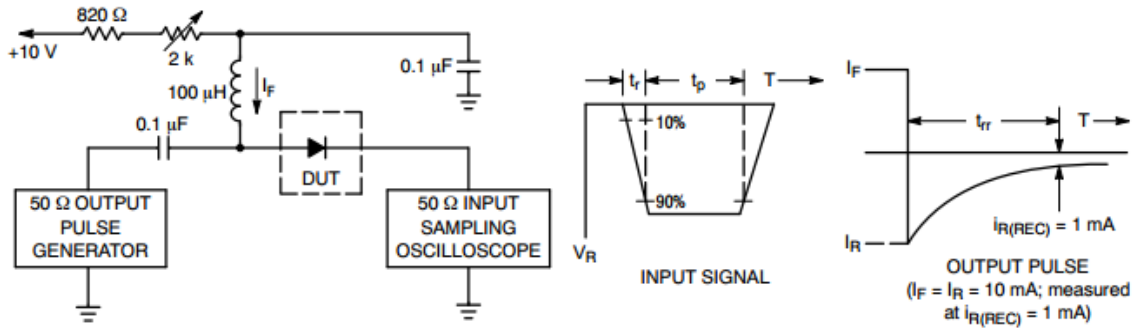
Device	Package	Shipping
NSR0115CQP6T5G	SOT-963 (Pb-Free)	8000 / Tape & Reel

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

# NSR0115CQP6T5G

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ , Single Diode)

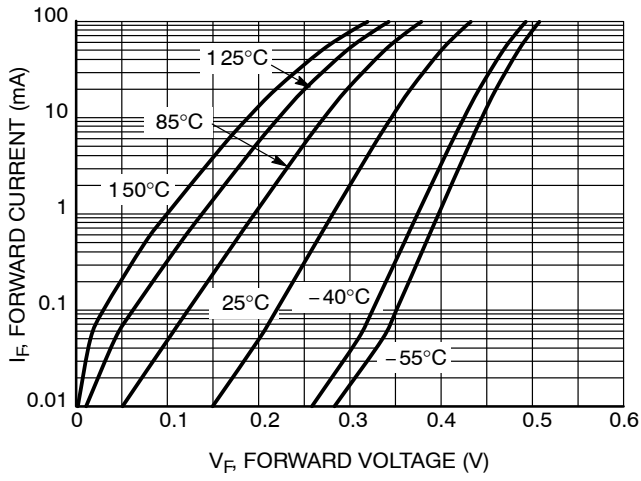
Characteristic	Symbol	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>				
Reverse Breakdown Voltage ( $I_R = 20 \mu\text{A}$ )	$V_{(BR)R}$	15	-	Vdc
Total Capacitance ( $V_R = 1.0 \text{ V}$ , $f = 1.0 \text{ MHz}$ )	$C_T$	-	8.0	pF
Reverse Leakage ( $V_R = 10 \text{ V}$ )	$I_R$	-	15	$\mu\text{A}$
Forward Voltage ( $I_F = 10 \mu\text{A}$ )	$V_F$		0.18	V
Forward Voltage ( $I_F = 10 \text{ mA}$ )	$V_F$	-	0.4	V
Reverse Recovery Time ( $I_F = I_R = 10 \text{ mA}$ , $I_{R(\text{REC})} = 1.0 \text{ mA}$ , Figure 1)	$t_{rr}$	-	5.0	ns



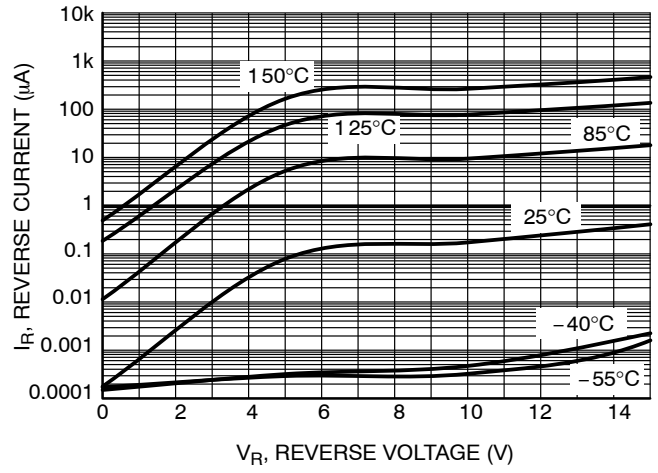
- Notes: 1. A 2.0 k $\Omega$  variable resistor adjusted for a Forward Current ( $I_F$ ) of 10 mA.  
 2. Input pulse is adjusted so  $I_{R(\text{peak})}$  is equal to 10 mA.  
 3.  $t_p = t_{rr}$

**Figure 1. Recovery Time Equivalent Test Circuit**

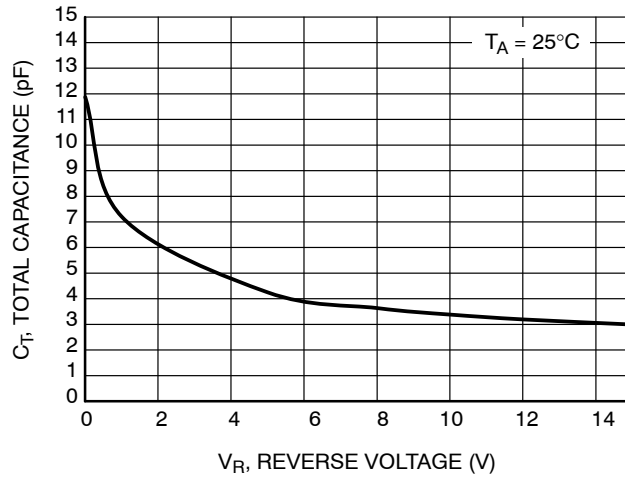
# NSR0115CQP6T5G



**Figure 2. Forward Voltage**



**Figure 3. Leakage Current**



**Figure 4. Total Capacitance**

# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

ON Semiconductor®



SCALE 4:1

**SOT-963**  
CASE 527AD-01  
ISSUE E

DATE 09 FEB 2010



- NOTES:
- DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
  - CONTROLLING DIMENSION: MILLIMETERS
  - MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
  - DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

MILLIMETERS			
DIM	MIN	NOM	MAX
A	0.34	0.37	0.40
b	0.10	0.15	0.20
C	0.07	0.12	0.17
D	0.95	1.00	1.05
E	0.75	0.80	0.85
e	0.35 BSC		
H <sub>E</sub>	0.95	1.00	1.05
L	0.19 REF		
L2	0.05	0.10	0.15

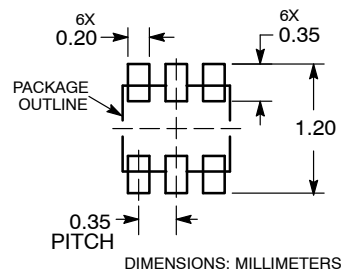
### GENERIC MARKING DIAGRAM\*



X = Specific Device Code  
M = Month Code

\*This information is generic. Please refer to device data sheet for actual part marking.  
Pb-Free indicator, "G" or microdot "▪", may or may not be present.

### RECOMMENDED MOUNTING FOOTPRINT



- STYLE 1:**  
PIN 1. EMITTER 1  
2. BASE 1  
3. COLLECTOR 2  
4. EMITTER 2  
5. BASE 2  
6. COLLECTOR 1
- STYLE 2:**  
PIN 1. EMITTER 1  
2. EMITTER2  
3. BASE 2  
4. COLLECTOR 2  
5. BASE 1  
6. COLLECTOR 1
- STYLE 3:**  
PIN 1. CATHODE 1  
2. CATHODE 1  
3. ANODE/ANODE 2  
4. CATHODE 2  
5. CATHODE 2  
6. ANODE/ANODE 1
- STYLE 4:**  
PIN 1. COLLECTOR  
2. COLLECTOR  
3. BASE  
4. EMITTER  
5. COLLECTOR  
6. COLLECTOR
- STYLE 5:**  
PIN 1. CATHODE  
2. CATHODE  
3. ANODE  
4. ANODE  
5. CATHODE  
6. CATHODE
- STYLE 6:**  
PIN 1. CATHODE  
2. ANODE  
3. CATHODE  
4. CATHODE  
5. CATHODE  
6. CATHODE
- STYLE 7:**  
PIN 1. CATHODE  
2. ANODE  
3. CATHODE  
4. CATHODE  
5. ANODE  
6. CATHODE
- STYLE 8:**  
PIN 1. DRAIN  
2. DRAIN  
3. GATE  
4. SOURCE3  
5. DRAIN  
6. DRAIN
- STYLE 9:**  
PIN 1. SOURCE 1  
2. GATE 1  
3. DRAIN 2  
4. SOURCE 2  
5. GATE 2  
6. DRAIN 1
- STYLE 10:**  
PIN 1. CATHODE 1  
2. N/C  
3. CATHODE 2  
4. ANODE 2  
5. N/C  
6. ANODE 1

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