

## Features

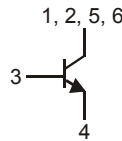
- $BV_{CEO} = 70V$
- $I_C = 2.0A$  Continuous Current
- $I_{CM} = 5A$  Peak Pulse Current
- Low Saturation Voltage  $V_{CE(sat)} < 30mV @ 100mA$
- $R_{sat} = 130m\Omega$  for a Low Equivalent On-Resistance
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen- and Antimony-Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](mailto:contact@diodes.com) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>**

## Mechanical Data

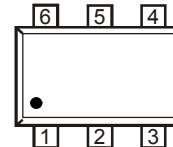
- Case: SOT666
- Case Material: Molded Plastic, "Green" Molding Compound  
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208
- Weight: 0.004 grams (Approximate)



Top View



Device Schematic



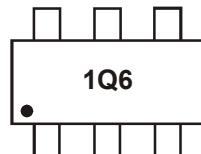
Pin Out Configuration

## Ordering Information (Note 4)

Part Number	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
ZXTN26070CV-7	Standard	1Q6	7	8mm	3000

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information



1Q6 = Product Type Marking Code

**Maximum Ratings** (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)

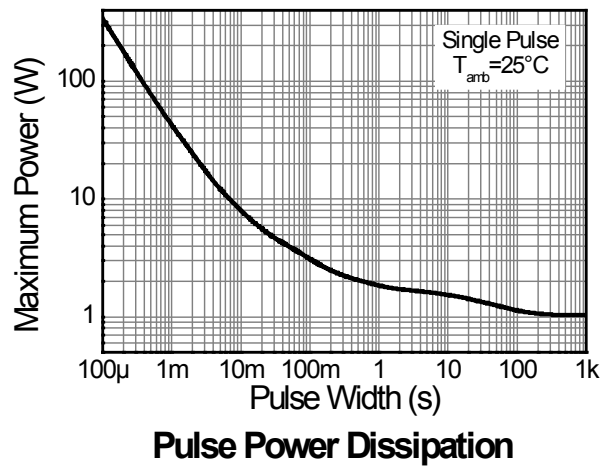
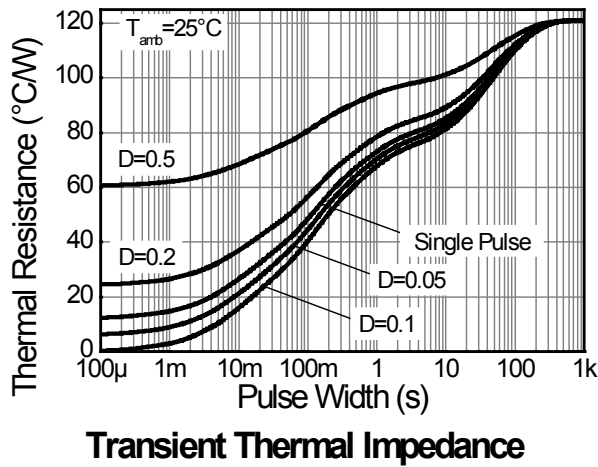
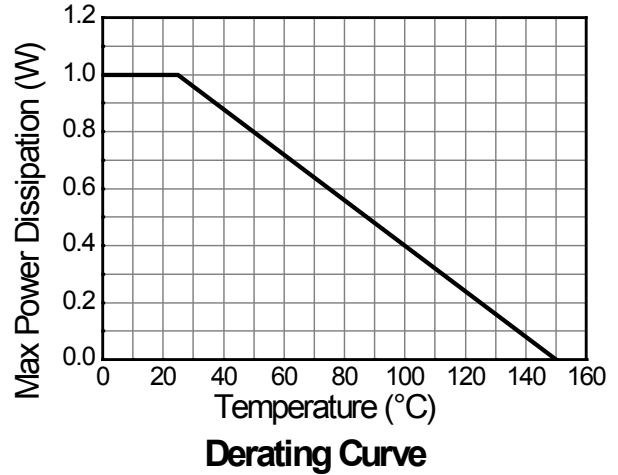
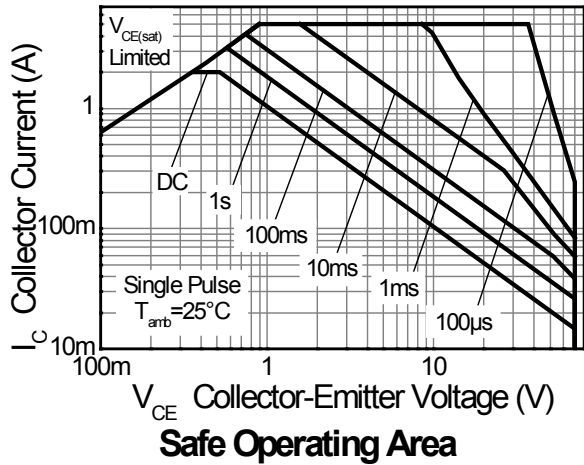
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	$V_{CB0}$	150	V
Collector-Emitter Voltage	$V_{CEO}$	70	V
Emitter-Base Voltage	$V_{EBO}$	7	V
Continuous Collector Current	$I_C$	2	A
Peak Pulse Collector Current (single pulse)	$I_{CM}$	5	A
Base Current	$I_B$	500	mA

**Thermal Characteristics** (@  $T_A = +25^\circ\text{C}$  unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Total Power Dissipation (Note 5)	$P_D$	0.6	W
Total Power Dissipation (Note 6)	$P_D$	1	W
Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	208	$^\circ\text{C/W}$
Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	121	$^\circ\text{C/W}$
Thermal Resistance, Junction to Lead (Note 7)	$R_{\theta JL}$	37	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

- Notes:
5. For a device surface mounted minimum recommended pad layout, in still air conditions
  6. Mounted on 25mm X 25mm X 1.6mm FR4 PCB with high coverage of single sided 2 oz copper, in still air conditions.
  7. Thermal resistance from junction to solder-point (at the end of the collector lead).

**Thermal Characteristics and Derating Information**

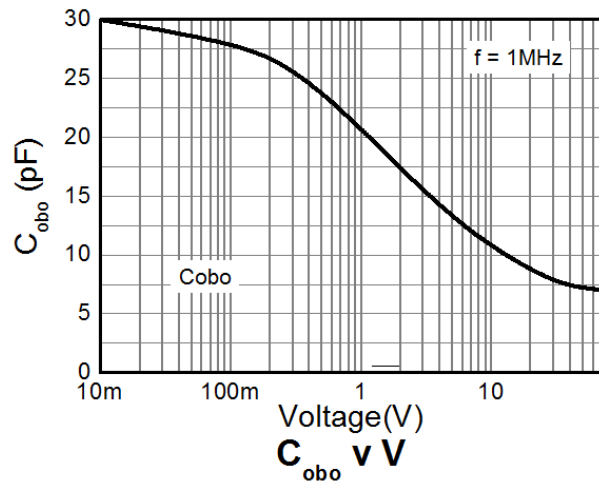
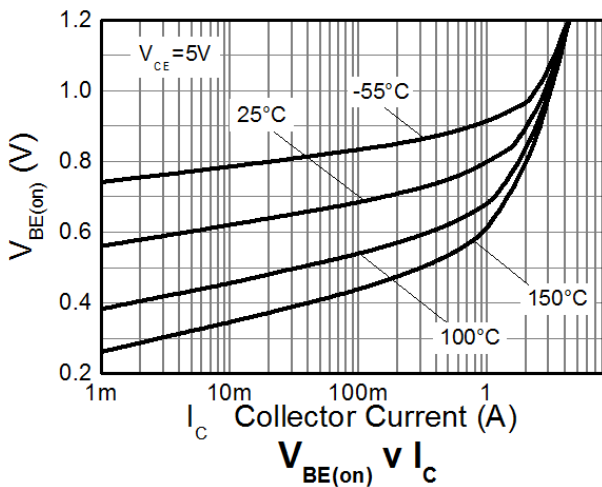
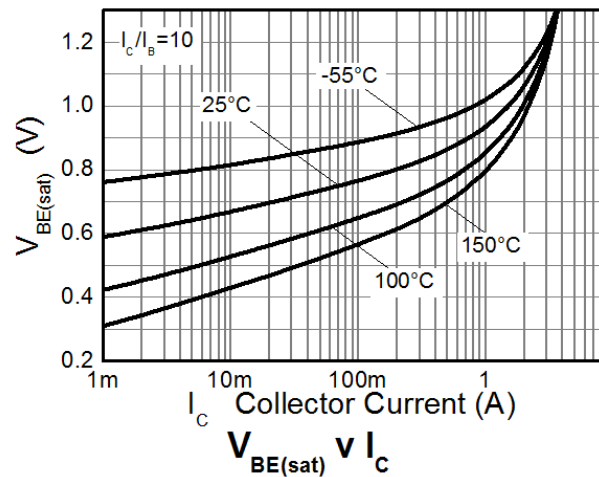
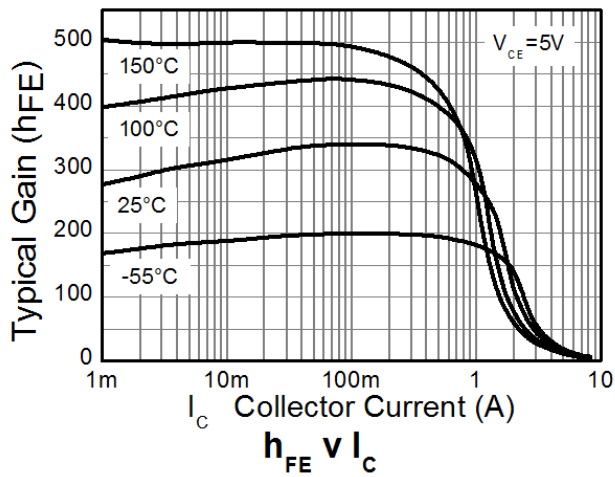
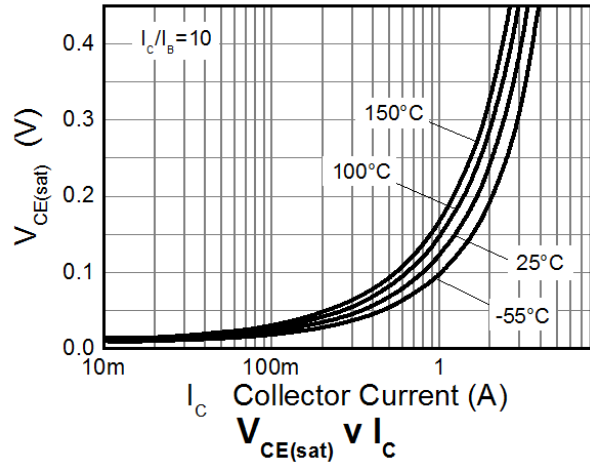
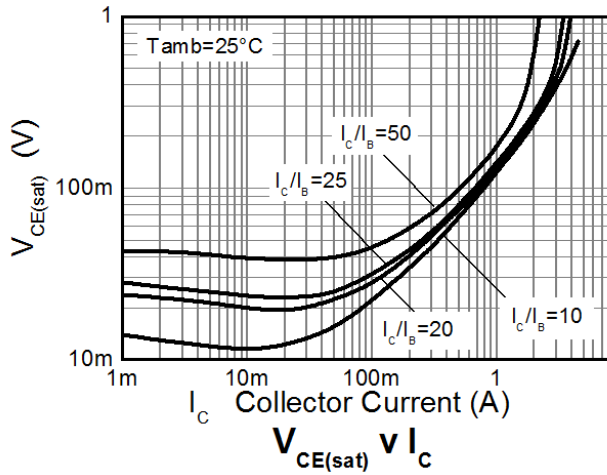


**Electrical Characteristics** @ T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
<b>OFF CHARACTERISTICS</b>						
Collector-Base Breakdown Voltage	BV <sub>CBO</sub>	150	190	–	V	I <sub>C</sub> = 100μA
Collector-Emitter Breakdown Voltage (Note 8)	BV <sub>CEO</sub>	70	80	–	V	I <sub>C</sub> = 10mA
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	7	8.3	–	V	I <sub>E</sub> = 100μA
Collector-Base Cut Off Current	I <sub>CBO</sub>	–	–	100	nA	V <sub>CB</sub> = 60V, V <sub>CES</sub> = 60V
Collector-Emitter Cut Off Current	I <sub>CES</sub>	–	–	100	nA	V <sub>CB</sub> = 60V, V <sub>CES</sub> = 60V
Emitter Cut Off Current	I <sub>EBO</sub>	–	–	100	nA	V <sub>EB</sub> = 5.6V
<b>ON CHARACTERISTICS (Note 8)</b>						
DC Current Gain	h <sub>FE</sub>	190 200 75	320 340 110	– – –	–	I <sub>C</sub> = 10mA, V <sub>CE</sub> = 5V I <sub>C</sub> = 100mA, V <sub>CE</sub> = 5V I <sub>C</sub> = 2A, V <sub>CE</sub> = 5V
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	– – – –	22 110 147 135 265	30 150 200 165 330	mV	I <sub>C</sub> = 0.1A, I <sub>B</sub> = 10mA I <sub>C</sub> = 0.5A, I <sub>B</sub> = 10mA I <sub>C</sub> = 1A, I <sub>B</sub> = 50mA I <sub>C</sub> = 1A, I <sub>B</sub> = 100mA I <sub>C</sub> = 2A, I <sub>B</sub> = 200mA
Base-Emitter Turn-On Voltage	V <sub>BE(on)</sub>	–	0.85	1.0	V	I <sub>C</sub> = 1A, V <sub>CE</sub> = 2V
Base-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	–	0.90	1.1	V	I <sub>C</sub> = 1A, I <sub>B</sub> = 50mA
<b>SMALL SIGNAL CHARACTERISTICS</b>						
Output Capacitance	C <sub>obo</sub>	–	10	–	pF	V <sub>CB</sub> = 10V, f = 1MHz
Transition frequency	f <sub>T</sub>	–	200	–	MHz	V <sub>CE</sub> = 10V, I <sub>C</sub> = 50mA, f = 100MHz
<b>SWITCHING CHARACTERISTICS</b>						
Turn-On Time	t <sub>on</sub>	–	46	–	ns	V <sub>CE</sub> = 10V, I <sub>C</sub> = 0.5A
Turn-Off Time	t <sub>off</sub>	–	722	–	ns	I <sub>B1</sub> = -I <sub>B2</sub> = 25mA

Note: 8. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤ 2%

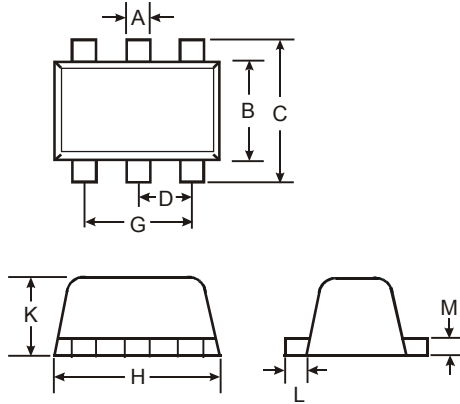
**Typical Characteristics**



## Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

### SOT666

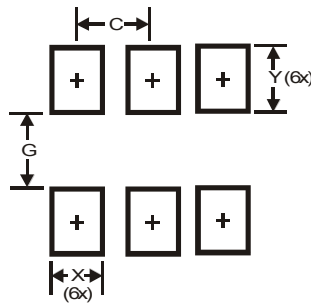


SOT666			
Dim	Min	Max	Typ
A	0.15	0.30	0.20
B	1.10	1.25	1.20
C	1.55	1.70	1.60
D	-	0.50	-
G	0.90	1.10	1.00
H	1.50	1.70	1.60
K	0.55	0.60	0.60
L	0.10	0.30	0.20
M	0.10	0.18	0.15
All Dimensions in mm			

## Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

### SOT666



Dimensions	Value (in mm)
C	0.50
G	0.80
X	0.35
Y	0.50

**Note:** The suggested land pattern dimensions have been provided for reference only, as actual pad layouts may vary depending on application. These dimensions may be modified based on user equipment capability or fabrication criteria. A more robust pattern may be desired for wave soldering and is calculated by adding 0.2 mm to the 'Z' dimension. For further information, please reference document IPC-7351A, Naming Convention for Standard SMT Land Patterns, and for International grid details, please see document IEC, Publication 97.

**Note:** For high voltage applications, the appropriate industry sector guidelines should be considered with regards to creepage and clearance distances between device Terminals and PCB tracking.

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