

ZXTN26070CV

70V NPN LOW SATURATION TRANSISTOR IN SOT-666

Features

- $BV_{ce0} = 70V$, $BV_{cbo} = 150V$
- I_c Cont. 2A
- 5A Peak Pulse Current
- Extremely Low Equivalent On Resistance; $R_{CE(sat)} = 130m\Omega$ at 1A
- **Lead, Halogen, and Antimony Free/RoHS Compliant (Note 1)**
- **“Green” Devices (Note 2)**

Mechanical Data

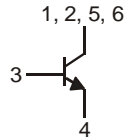
- Case: SOT-666
- Case material: Molded Plastic. “Green” Molding Compound.
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over copper leadframe. Solderable per MIL-STD-202, Method 208
- Weight: 0.003 grams (Approximate)

Applications

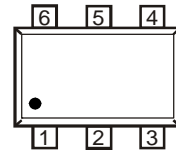
- DC-DC converter



Top View



Device Schematic



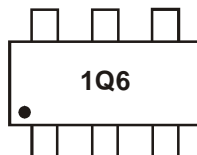
Pin Out Configuration

Ordering Information (Note 3)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
ZXTN26070CV-7	1Q6	7	8mm	3000

- Notes:
1. No purposefully added lead. Halogen and Antimony free: <900ppm bromine, <900ppm chlorine (<1500ppm total) and <1000ppm antimony compounds.
 2. Diodes Inc.'s “Green” Policy can be found on our website at <http://www.diodes.com>
 3. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



1Q6 = Product Type Marking Code

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

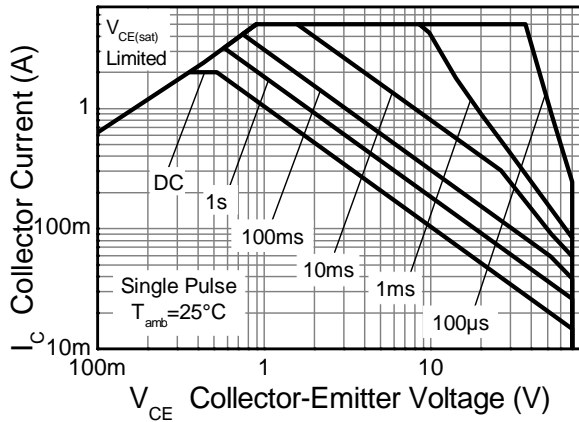
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	150	V
Collector-Emitter Voltage	V_{CEO}	70	V
Emitter-Base Voltage	V_{EBO}	7	V
Continuous Collector Current	I_C	2	A
Peak Pulse Current	I_{CM}	5	A
Base Current	I_B	500	A

Thermal Characteristics

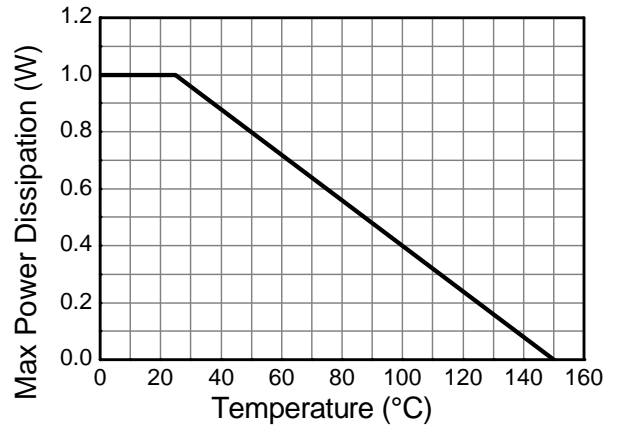
Characteristic	Symbol	Value	Unit
Power Dissipation at $T_A = 25^\circ\text{C}$ (Note 4)	P_D	0.6	W
Power Dissipation at $T_A = 25^\circ\text{C}$ (Note 5)	P_D	1	W
Thermal Resistance, Junction to Ambient (Note 4) @ $T_A = 25^\circ\text{C}$	$R_{\theta JA}$	208	$^\circ\text{C/W}$
Thermal Resistance, Junction to Ambient (Note 5) @ $T_A = 25^\circ\text{C}$	$R_{\theta JA}$	121	$^\circ\text{C/W}$
Thermal Resistance, Junction to Lead (Note 6)	$R_{\theta JL}$	37	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

- Notes:
4. For a device surface mounted minimum recommended pad layout, in still air conditions
 5. Mounted on 25mm X 25mm X 1.6mm FR4 PCB with high coverage of single sided 2 oz copper, in still air conditions.
 6. From Collector leads. Typical.

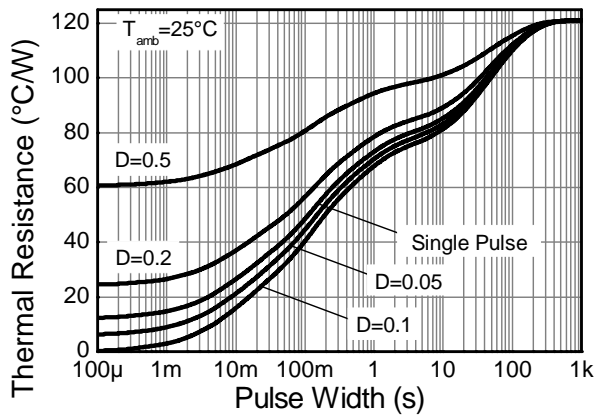
Thermal Characteristics and Derating Information



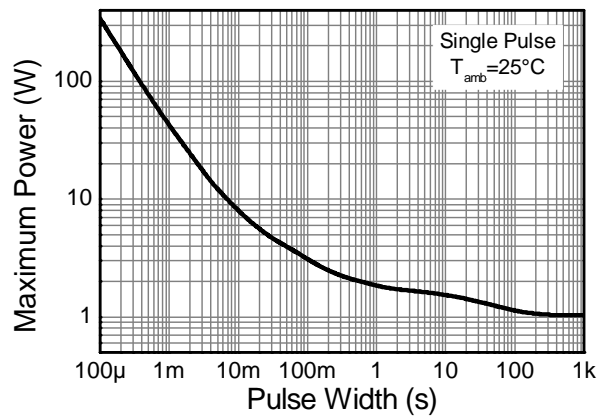
Safe Operating Area



Derating Curve



Transient Thermal Impedance



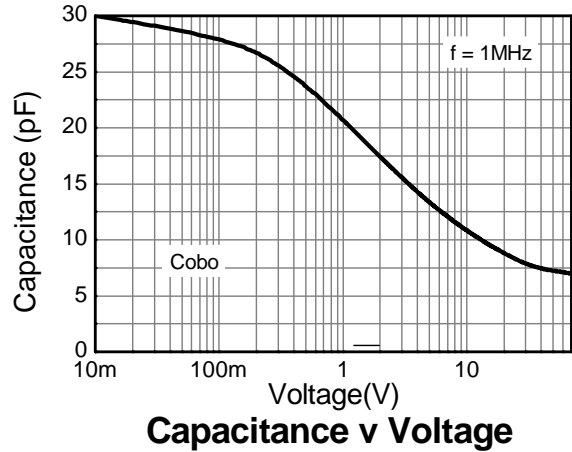
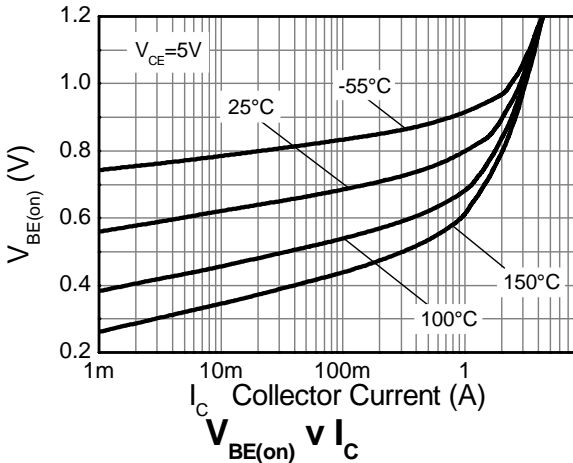
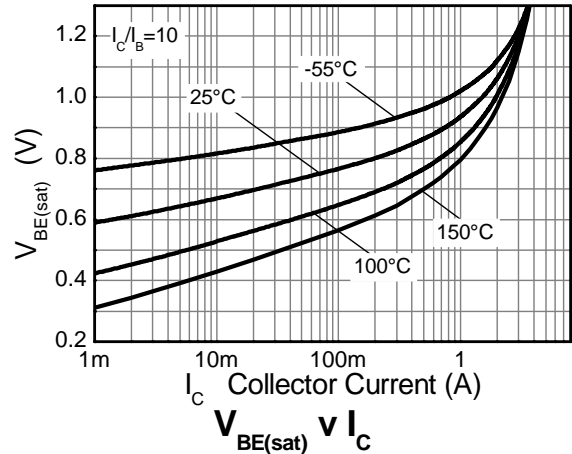
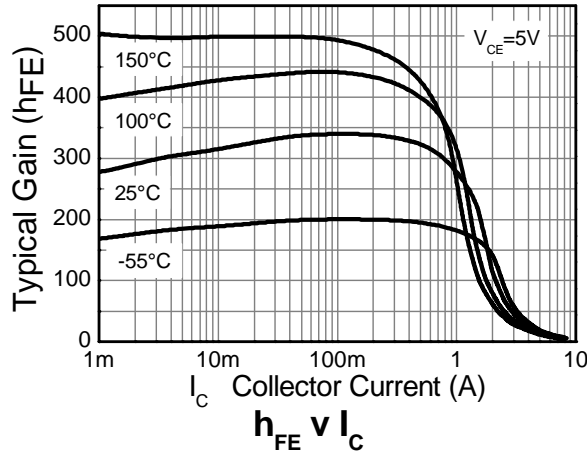
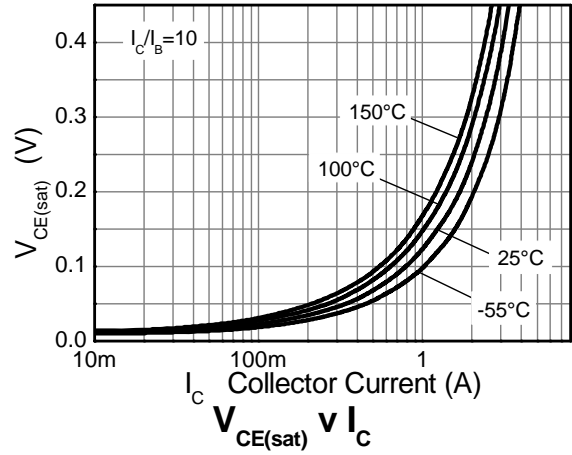
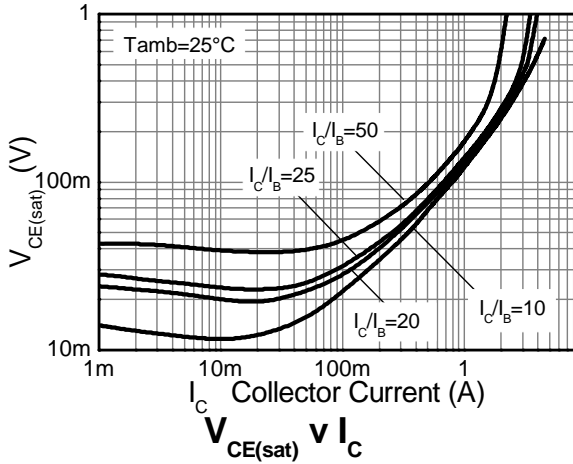
Pulse Power Dissipation

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	150	190	–	V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage (Note 7)	$V_{(BR)CEO}$	70	80	–	V	$I_C = 10\text{mA}$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	7	8.3	–	V	$I_E = 100\mu\text{A}$
Collector Cutoff Current	I_{CBO}, I_{CES}	–	–	100	nA	$V_{CB} = 60\text{V}, V_{CES} = 60\text{V}$
Emitter Cutoff Current	I_{EBO}	–	–	100	nA	$V_{EB} = 5.6\text{V}$
ON CHARACTERISTICS (Note 7)						
DC Current Gain	h_{FE}	190	320	–	–	$I_C = 10\text{mA}, V_{CE} = 5\text{V}$
		200	340	–		
		75	110	–		
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	–	22	30	V	$I_C = 0.1\text{A}, I_B = 10\text{mA}$
		–	110	150		$I_C = 0.5\text{A}, I_B = 10\text{mA}$
		–	147	200		$I_C = 1\text{A}, I_B = 50\text{mA}$
		–	135	165		$I_C = 1\text{A}, I_B = 100\text{mA}$
		–	265	330		$I_C = 2\text{A}, I_B = 200\text{mA}$
Base-Emitter Turn-On Voltage	$V_{BE(ON)}$	–	0.85	1.0	V	$I_C = 1\text{A}, V_{CE} = 2\text{V}$
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	–	0.90	1.1	V	$I_C = 1\text{A}, I_B = 50\text{mA}$
SMALL SIGNAL CHARACTERISTICS						
Output Capacitance	C_{obo}	–	10	–	pF	$V_{CB} = 10\text{V}, f = 1\text{MHz}$
Current Gain-Bandwidth Product	f_T	–	200	–	MHz	$V_{CE} = 10\text{V}, I_C = 50\text{mA}, f = 100\text{MHz}$
SWITCHING CHARACTERISTICS						
Turn-On Time	t_{on}	–	46	–	ns	$V_{CE} = 10\text{V}, I_C = 0.5\text{A}$
Turn-Off Time	t_{off}	–	722	–	ns	$I_{B1} = -I_{B2} = 25\text{mA}$

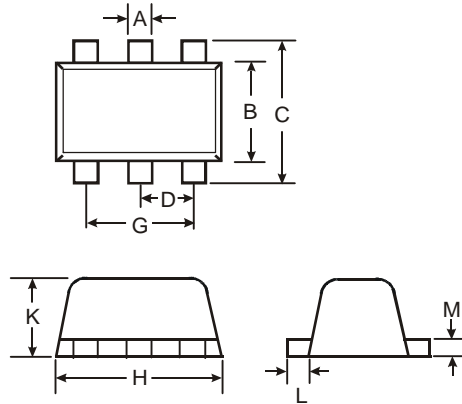
Notes: 7. Measured under pulsed conditions. Pulse width = 300 μs . Duty cycle $\leq 2\%$

Typical Characteristics



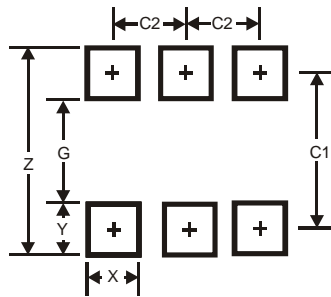
ZXTN26070CV

Package Outline Dimensions



SOT-666			
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



Dimensions	Value (in mm)
Z	2.2
G	1.2
X	0.375
Y	0.5
C1	1.7
C2	0.5

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