ZXTN26070CV

70V NPN LOW SATURATION TRANSISTOR IN SOT-666

Features

- BVceo = 70V, BVcbo = 150V
- I_C Cont. 2A
- 5A Peak Pulse Current
- Extremely Low Equivalent On Resistance; $R_{CE(sat)}$ = 130mΩ at 1A
- **Lead, Halogen, and Antimony Free/RoHS Compliant (Note 1)**
- **"Green" Devices (Note 2)**

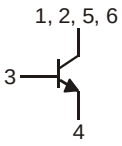
Mechanical Data

- 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)

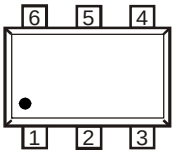
Applications

- DC-DC converter

Top View



Device Schematic



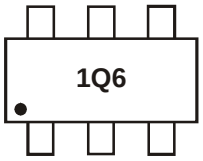
Pin Out Configuration

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°C unless otherwise specified

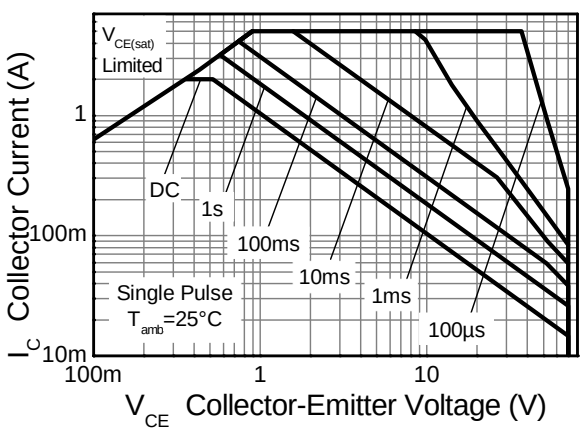
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	150	V
Collector-Emitter Voltage	V_{CEO}	70	V
Emitter-Base Voltage	V_{EBO}	7	V
Continuous Collector Current	I_C	2	A
Peak Pulse Current	I_{CM}	5	A
Base Current	I_B	500	A

Thermal Characteristics

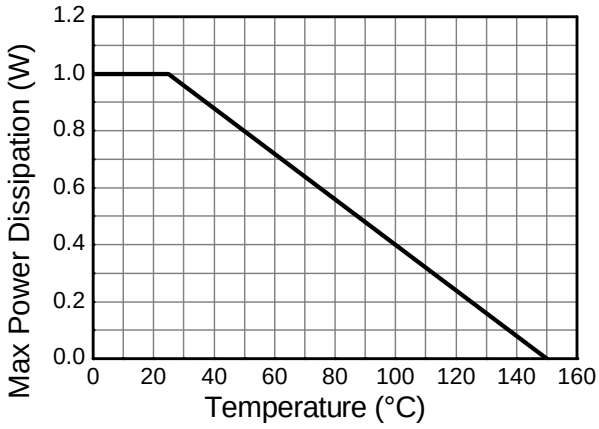
Characteristic	Symbol	Value	Unit
Power Dissipation at T_A = 25°C (Note 4)	P_D	0.6	W
Power Dissipation at T_A = 25°C (Note 5)	P_D	1	W
Thermal Resistance, Junction to Ambient (Note 4) @ T_A = 25°C	$R_{\theta JA}$	208	°C/W
Thermal Resistance, Junction to Ambient (Note 5) @ T_A = 25°C	$R_{\theta JA}$	121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

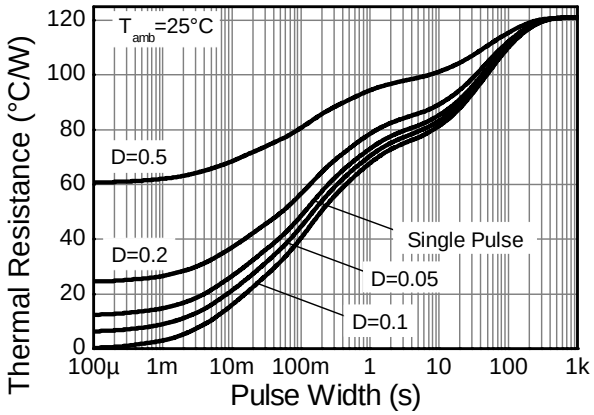
Thermal Characteristics and Derating Information



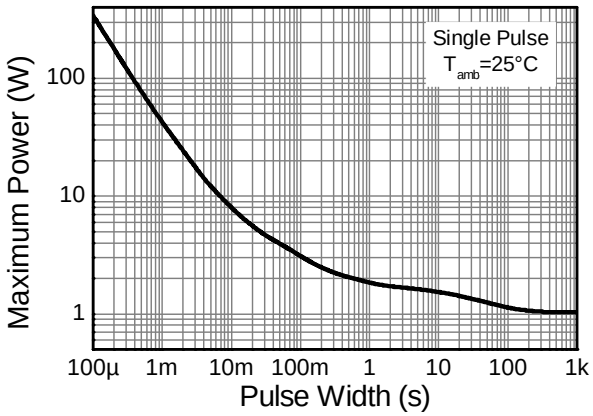
Safe Operating Area



Derating Curve



Transient Thermal Impedance



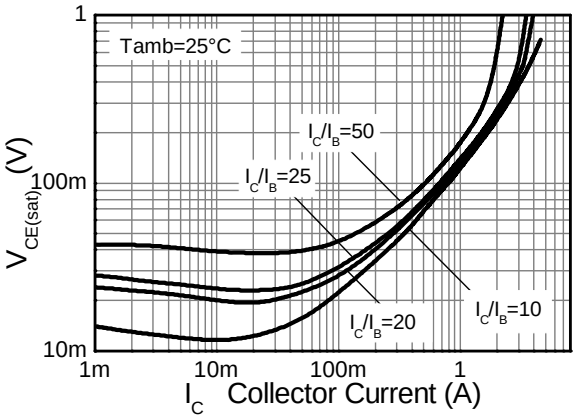
Pulse Power Dissipation

Electrical Characteristics @T_A = 25°C unless otherwise specified

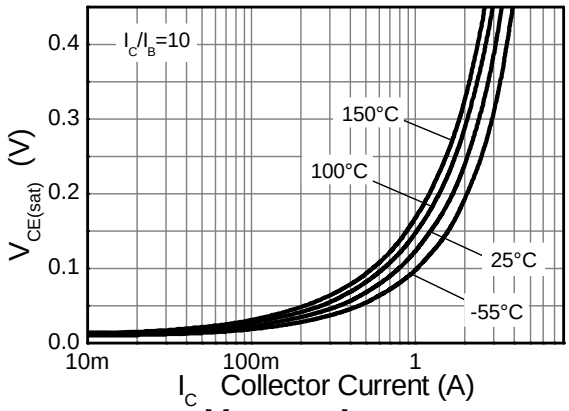
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	150	190	–	V	I_C = 100µA
Collector-Emitter Breakdown Voltage (Note 7)	$V_{(BR)CEO}$	70	80	–	V	I_C = 10mA
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	7	8.3	–	V	I_E = 100µA
Collector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

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

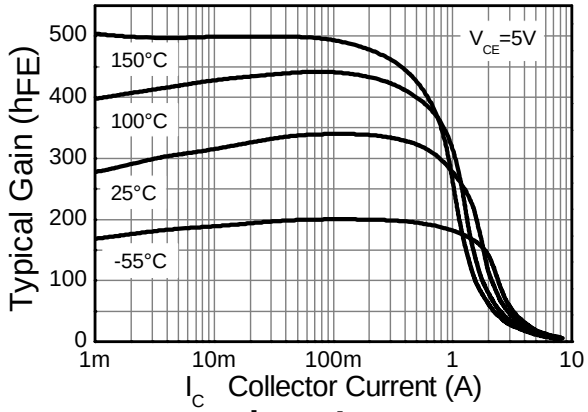
Typical Characteristics



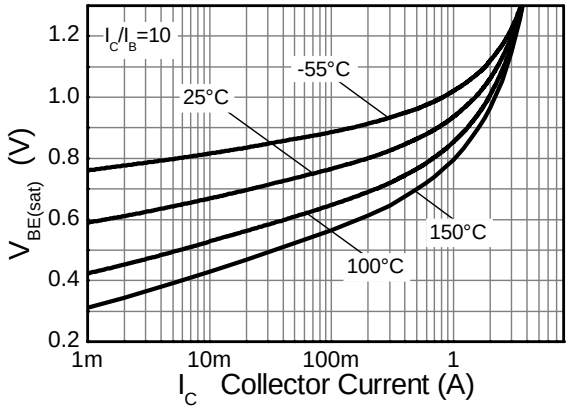
$V_{CE(sat)}$ v I_C



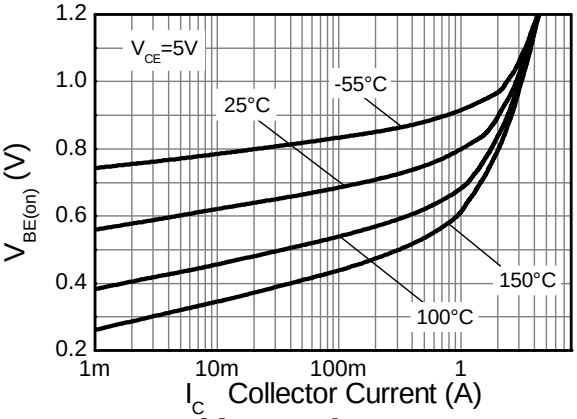
$V_{CE(sat)}$ v I_C



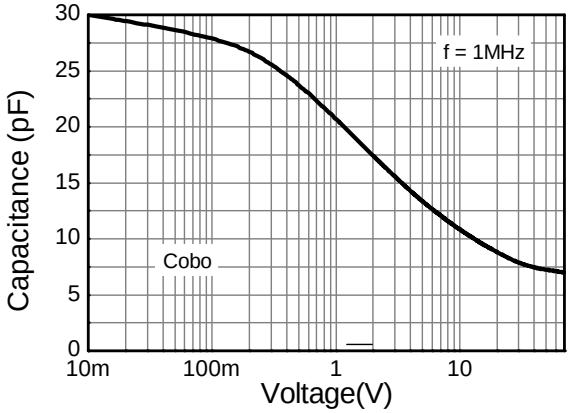
h_{FE} v I_C



$V_{BE(sat)}$ v I_C

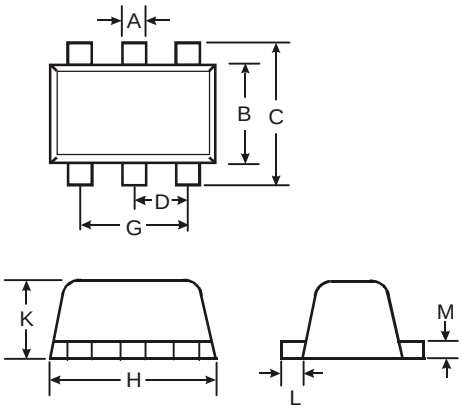


$V_{BE(on)}$ v I_C



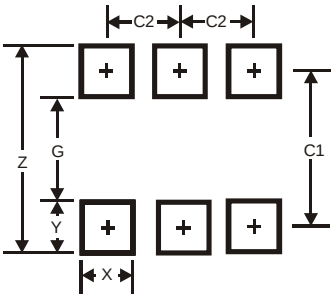
Capacitance v Voltage

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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