



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



ZXTD09N50DE6

50V DUAL NPN SILICON LOW SATURATION SWITCHING TRANSISTOR

Features

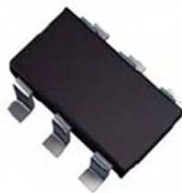
- $BV_{CEO} > 50V$
- $R_{SAT} = 160m\Omega$
- Max continuous Current $I_C = 1A$
- Low Equivalent On Resistance
- Low Saturation Voltage
- **Lead Free, RoHS Compliant (Note 1)**
- **Halogen and Antimony Free "Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

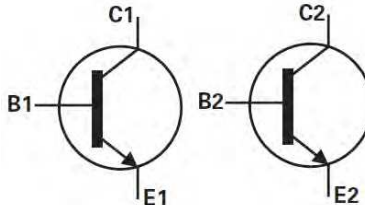
- Case: SOT26
- Case material: Molded Plastic. "Green" Molding Compound.
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish
- Weight: 0.018 grams (Approximate)

Applications

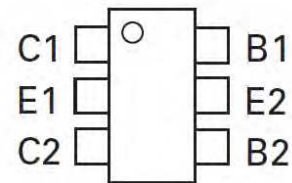
- LCD Backlighting inverter circuits
- Boost functions in DC-DC converters



SOT26



Device symbol



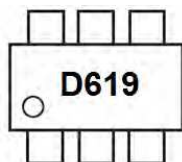
Pin out –top view

Ordering Information (Note 3 & 4)

Product	Grade	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
ZXTD09N50DE6TA	Commercial	D619	7	8	3,000
ZTD09N50DE6QTA	Automotive	D619	7	8	3,000

- Notes:
1. No purposefully added lead.
 2. Diodes Inc.'s "Green" Policy can be found on our website at <http://www.diodes.com>
 3. For more packaging details, go to our website at <http://www.diodes.com>.
 4. Products with Q-suffix are automotive grade.

Marking Information



D619 = Product type Marking Code

Absolute Maximum Ratings @T_A = 25°C unless otherwise specified

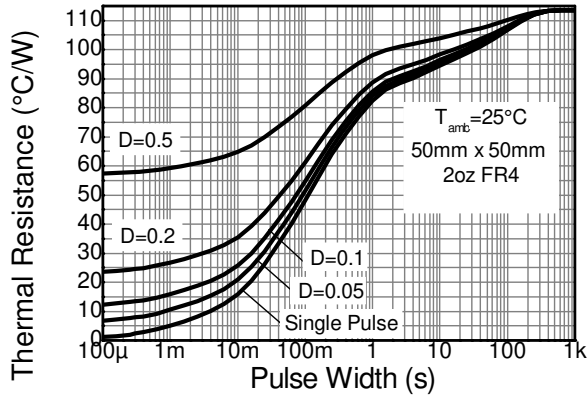
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	50	V
Collector-Emitter Voltage	V _{CEO}	50	V
Emitter-Base Voltage	V _{EBO}	5	V
Continuous Collector Current	I _C	1	A
Base current	I _B	200	mA
Peak Pulse Current	I _{CM}	2	A

Thermal Characteristics @T_A = 25°C unless otherwise specified

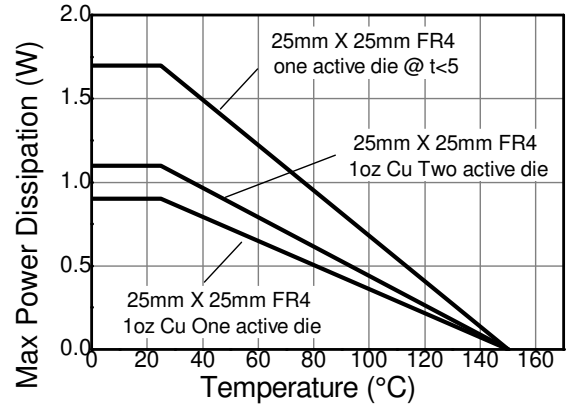
Characteristic	Symbol	Value	Unit
Power Dissipation Linear derating factor	P _D	0.90	W mW/°C
		7.2	
		1.1	
		8.8	
Thermal Resistance, Junction to Ambient	R _{θJA}	1.7	°C/W
		13.6	
		139	
Thermal Resistance, Junction to Lead	R _{θJL}	73	°C/W
		113	
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

- Notes:
5. For a device surface mounted on 25mm X 25mm FR4 PCB with high coverage of single sided 1 oz copper, in still air conditions
 6. For a device surface mounted on FR4 PCB measured at < 5sec
 7. Repetitive rating – pulse width limited by maximum junction temperature. Refer to transient thermal impedance graph
 8. For a device with one active die
 9. For a device with two die running at equal power
 10. Thermal resistance from junction to solder-point (at the end of the collector lead).

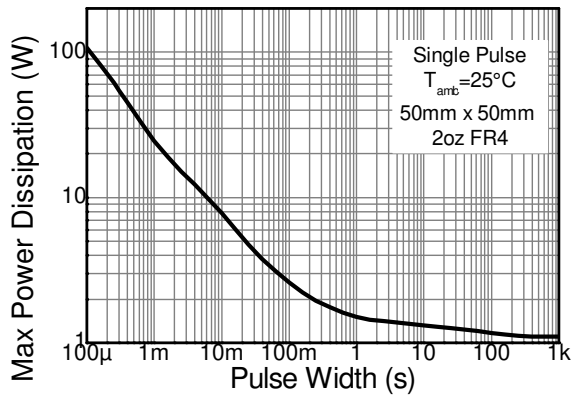
Thermal Characteristics



Transient Thermal Impedance



Derating Curve



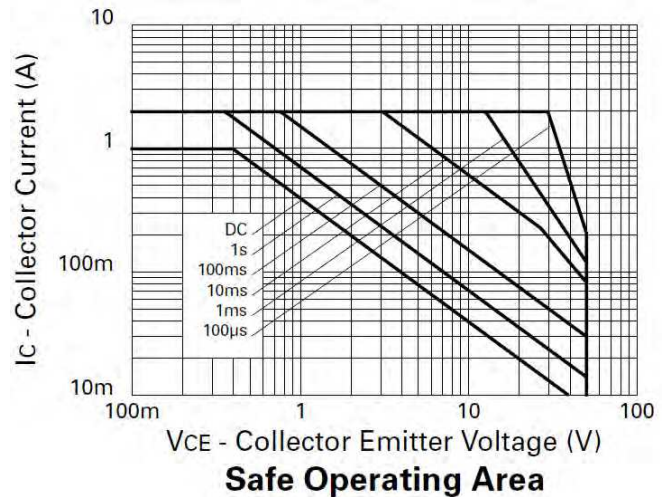
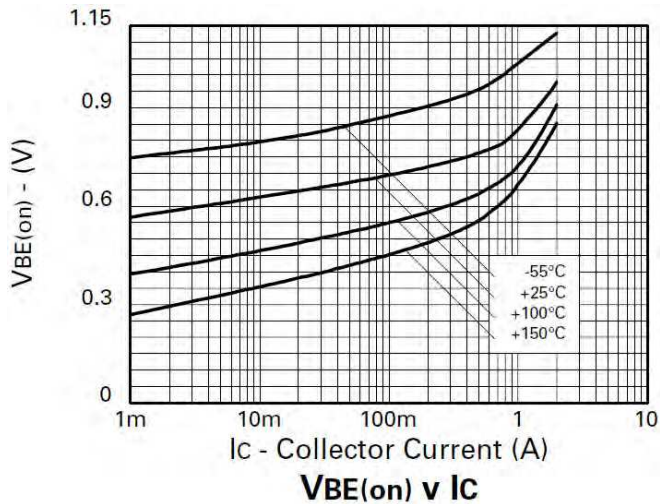
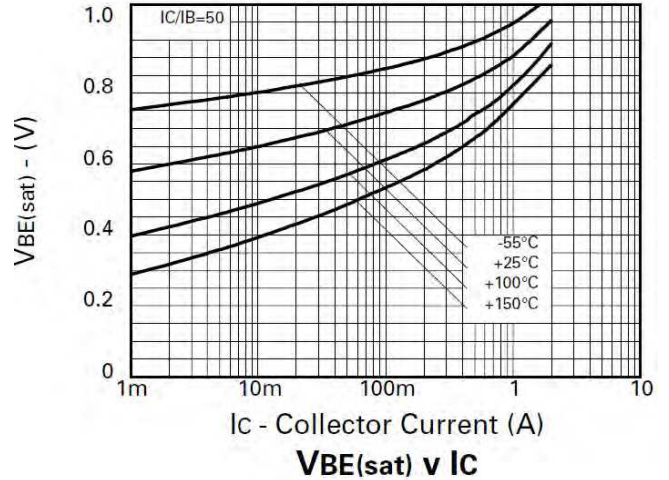
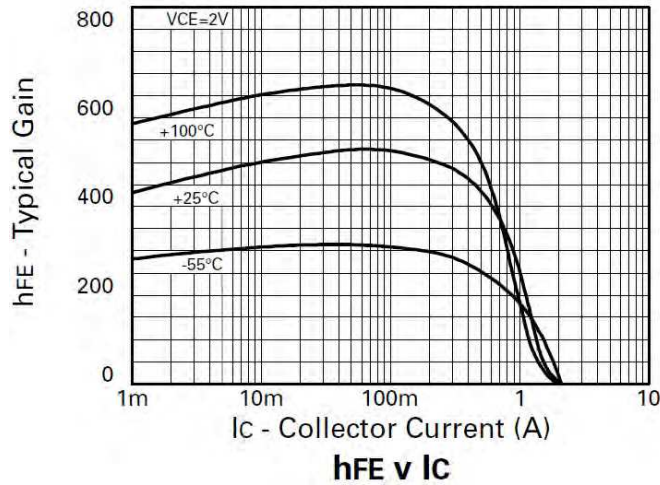
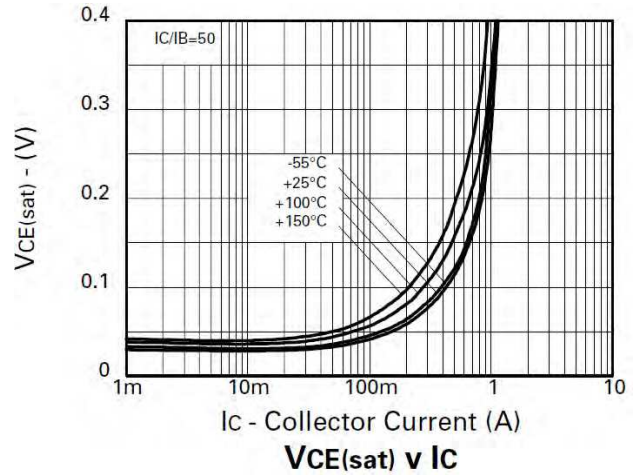
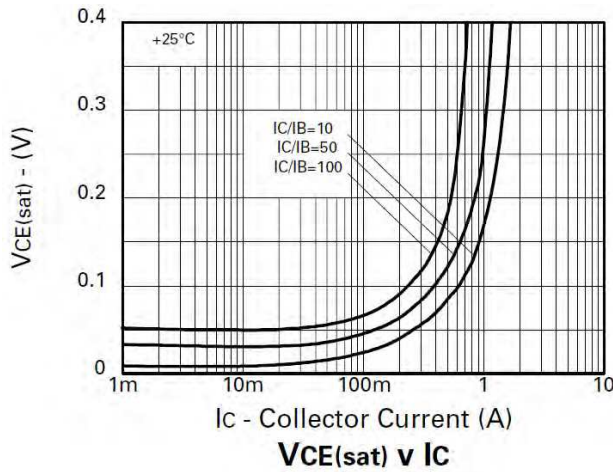
Pulse Power Dissipation

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified (Q1, Q2 common)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	50			V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage (Note 11)	BV_{CEO}	50			V	$I_C = 10\text{mA}$
Emitter-Base Breakdown Voltage	BV_{EBO}	5			V	$I_E = 100\mu\text{A}$
Collector-Base Cutoff Current	I_{CBO}			10	nA	$V_{CB} = 40\text{V}$
Collector-Emitter Cutoff Current	I_{CES}			10	nA	$V_{CES} = 40\text{V}$
Emitter Cutoff Current	I_{EBO}			10	nA	$V_{EB} = 4\text{V}$
DC Current Gain (Note 11)	h_{FE}	200	420			$I_C = 10\text{mA}, V_{CE} = 2\text{V}$
		300	450			$I_C = 100\text{mA}, V_{CE} = 2\text{V}$
		200	350			$I_C = 500\text{mA}, V_{CE} = 2\text{V}$
		75	130			$I_C = 1\text{A}, V_{CE} = 2\text{V}$
		20	60			$I_C = 1.5\text{A}, V_{CE} = 2\text{V}$
Collector-Emitter Saturation Voltage (Note 11)	$V_{CE(sat)}$		24	35	mV	$I_C = 100\text{mA}, I_B = 10\text{mA}$
			60	80		$I_C = 250\text{mA}, I_B = 10\text{mA}$
			120	200		$I_C = 500\text{mA}, I_B = 10\text{mA}$
			160	270		$I_C = 1\text{A}, I_B = 50\text{mA}$
Base-Emitter Saturation Voltage (Note 11)	$V_{BE(sat)}$		940	1100	mV	$I_C = 1\text{A}, I_B = 50\text{mA}$
Base-Emitter Turn-On Voltage (Note 11)	$V_{BE(on)}$		850	1100	mV	$I_C = 1\text{A}, V_{CE} = 2\text{V}$
Output Capacitance	C_{obo}		10		pF	$V_{CB} = 10\text{V}, f = 1\text{MHz}$
Current Gain-Bandwidth Product	f_T		215		MHz	$V_{CE} = 10\text{V}, I_C = 50\text{mA}$ $f = 100\text{MHz}$
Turn-On Time	t_{on}		150		ns	$V_{CC} = 10\text{V}, I_C = 1\text{A}$
Turn-Off Time	t_{off}		425		ns	

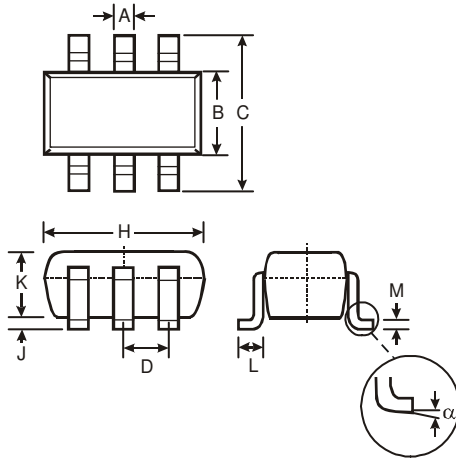
Notes: 11. Measured under pulsed conditions. Pulse width $\leq 300 \mu\text{s}$. Duty cycle $\leq 2\%$

Typical Characteristics



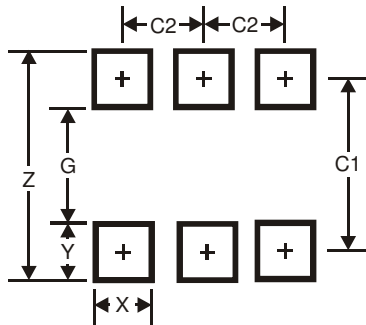
ZXTD09N50DE6

Package Outline Dimensions



SOT26			
Dim	Min	Max	Typ
A	0.35	0.50	0.38
B	1.50	1.70	1.60
C	2.70	3.00	2.80
D	—	—	0.95
H	2.90	3.10	3.00
J	0.013	0.10	0.05
K	1.00	1.30	1.10
L	0.35	0.55	0.40
M	0.10	0.20	0.15
α	0°	8°	—
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	3.20
G	1.60
X	0.55
Y	0.80
C1	2.40
C2	0.95

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