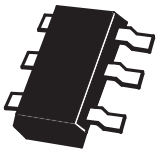
ZXTD09N50DE6

SuperSOT
DUAL 50V NPN SILICON LOW SATURATION SWITCHING TRANSISTOR

SUMMARY
V_{CEO}=50V; R_{SAT} = 160mΩ; I_C= 1A

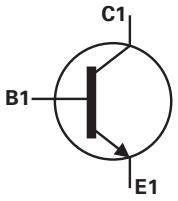


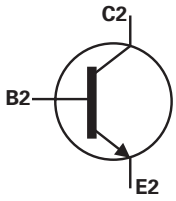
SOT23-6

DESCRIPTION
A dual NPN low saturation transistor combination contained in a single 6 lead SOT23 package. Each transistor is the equivalent to the ZUMT619 device.

FEATURES
- Low Equivalent On Resistance
- Low Saturation Voltage
- I_C=1A Continuous Collector Current
- SOT23-6 package

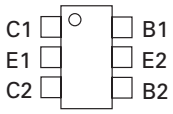
APPLICATIONS
- LCD Backlighting inverter circuits
- Boost functions in DC-DC converters
-





ORDERING INFORMATION

DEVICE	REEL SIZE (inches)	TAPE WIDTH (mm)	QUANTITY PER REEL
ZXTD09N50DE6TA	7	8mm embossed	3000 units
ZXTD09N50DE6TC	13	8mm embossed	10000 units



Top View

DEVICE MARKING
D619

ZXTD09N50DE6

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	LIMIT	UNIT
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CEO}	50	V
Emitter-Base Voltage	V_{EBO}	5	V
Peak Pulse Current	I_{CM}	2	A
Continuous Collector Current	I_C	1.0	A
Base Current	I_B	200	mA
Power Dissipation at TA=25°C (a)(d) Linear Derating Factor	P_D	0.90 7.2	W mW/°C
Power Dissipation at TA=25°C (a)(e) Linear Derating Factor	P_D	1.1 8.8	W mW/°C
Power Dissipation at TA=25°C (b)(d) Linear Derating Factor	P_D	1.7 13.6	W mW/°C
Operating and Storage Temperature Range	T_j:T_{stg}	-55 to +150	°C

THERMAL RESISTANCE

PARAMETER	SYMBOL	VALUE	UNIT
Junction to Ambient (a)(d)	$R_{\theta JA}$	139	°C/W
Junction to Ambient (b)(d)	$R_{\theta JA}$	73	°C/W
Junction to Ambient (a)(e)	$R_{\theta JA}$	113	°C/W

NOTES

(a) For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions

(b) For a device surface mounted on FR4 PCB measured at t≤5 secs.

(c) Repetitive rating - pulse width limited by maximum junction temperature. Refer to Transient Thermal Impedance graph.

(d) For device with one active die.

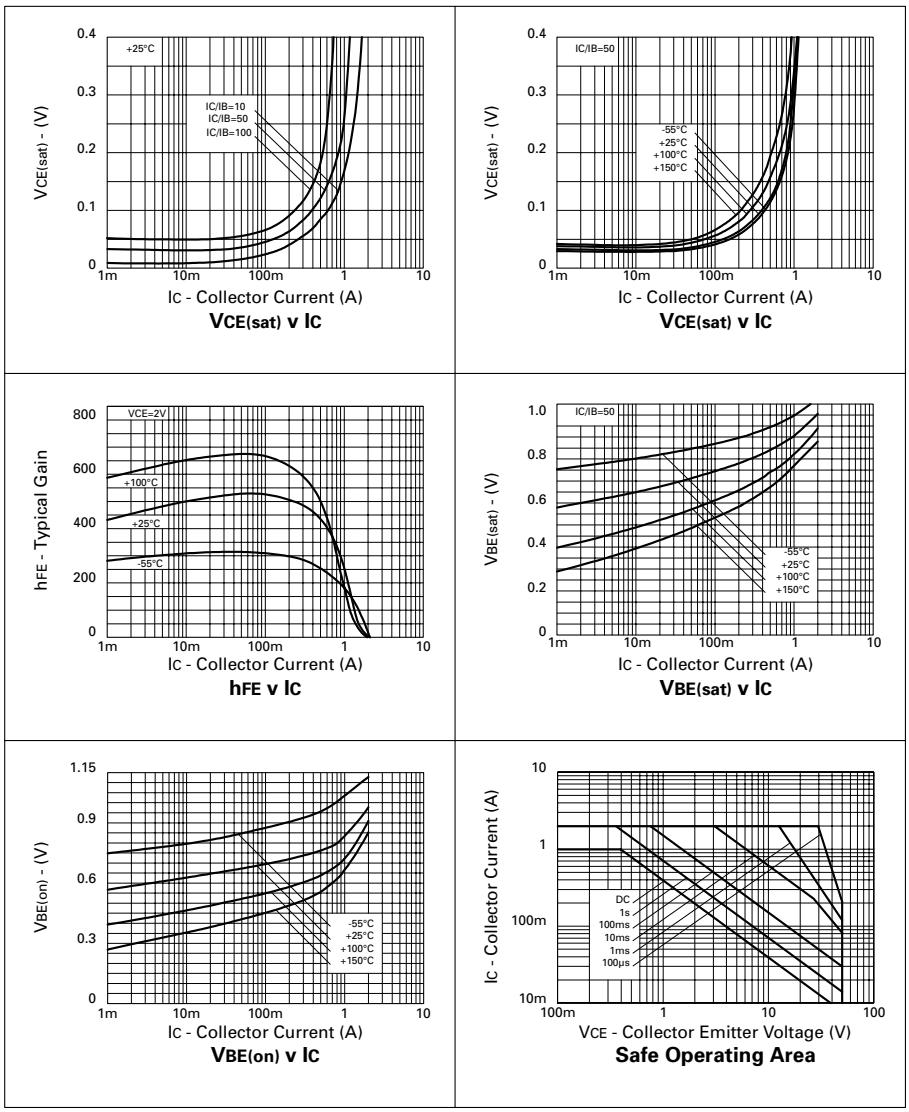
(e) For device with two active die running at equal power.

ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	50			V	I_C= 100µA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	50			V	I_C= 10mA*
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	I_E= 100µA
Collector Cut-Off Current	I_{CBO}			10	nA	V_{CB}= 40V
Emitter Cut-Off Current	I_{EBO}			10	nA	V_{EB}= 4V
Collector Emitter Cut-Off Current	I_{CES}			10	nA	V_{CES}= 40V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		24 60 120 160	35 80 200 270	mV mV mV mV	I_C= 100mA, I_B= 10mA* I_C= 250mA, I_B= 10mA* I_C= 500mA, I_B= 10mA* I_C= 1A, I_B= 50mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		940	1100	mV	I_C= 1A, I_B= 50mA*
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		850	1100	mV	I_C= 1A, V_{CE}= 2V*
Static Forward Current Transfer Ratio	h_{FE}	200 300 200 75 20	420 450 350 130 60			I_C=10mA, V_{CE}= 2V* I_C= 100mA, V_{CE}=2 V* I_C= 500mA, V_{CE}=2V* I_C= 1A, V_{CE}= 2V* I_C= 1.5A, V_{CE}=2 V*
Transition Frequency	f_T		215		MHz	I_C= 50mA, V_{CE}=10V f= 100MHz
Output Capacitance	C_{obo}		10		pF	V_{CB}= 10V, f=1MHz
Turn-On Time	$t_{(on)}$		150		ns	V_{CC}=10 V, I_C= 1A I_{B1}=I_{B2}=100mA
Turn-Off Time	$t_{(off)}$		425		ns	

*Measured under pulsed conditions. Pulse width=300µs. Duty cycle ≤ 2%

TYPICAL CHARACTERISTICS



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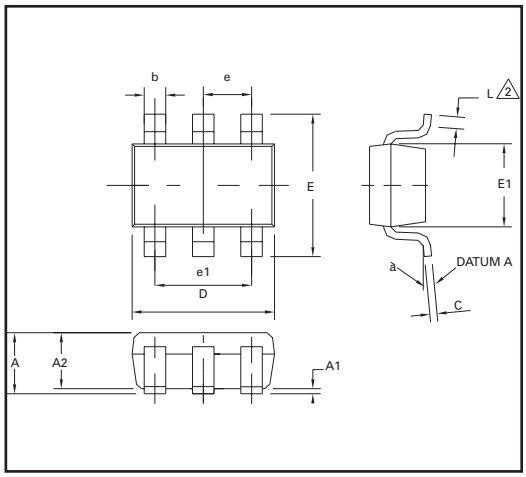
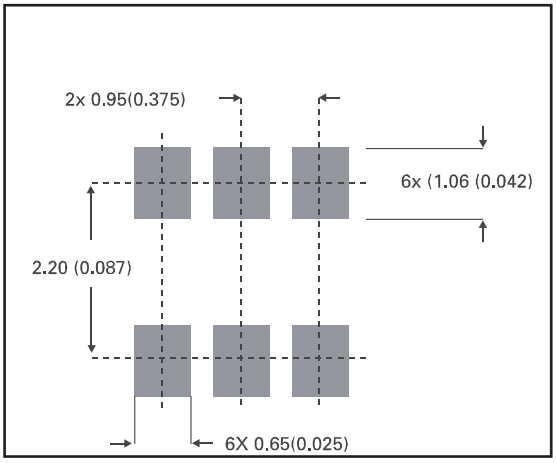
PACKAGE DIMENSIONS



PAD LAYOUT DETAILS



DIM	Millimetres		Inches	
	Min	Max	Min	Max
A	0.90	1.45	0.35	0.057
A1	0.00	0.15	0	0.006
A2	0.90	1.30	0.035	0.051
b	0.35	0.50	0.014	0.019
C	0.09	0.20	0.0035	0.008
D	2.80	3.00	0.110	0.118
E	2.60	3.00	0.102	0.118
E1	1.50	1.75	0.059	0.069
L	0.10	0.60	0.004	0.002
e	0.95 REF		0.037 REF	
e1	1.90 REF		0.074 REF	
L	0°	10°	0°	10°

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ISSUE 2 - JUNE 2001