

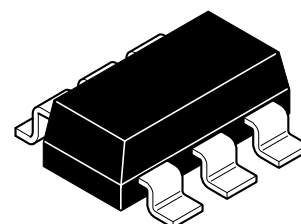
ZXTC2045E6

Dual 40V complementary transistors in SOT23-6

Summary

$BV_{CEV} = 40V$

$BV_{CEO} = 30V$

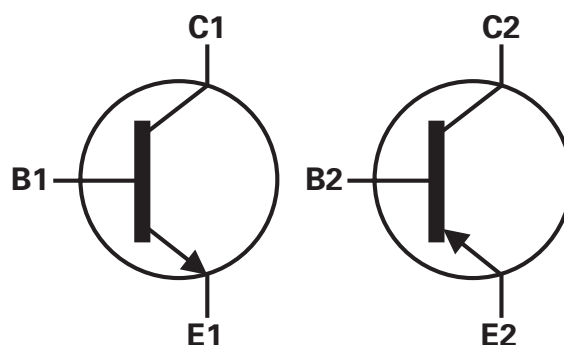


Features

- 40V complementary device
- Up to 5 amps peak current
- High h_{FE}
- SOT236 package

Applications

- MOSFET and IGBT gate driving



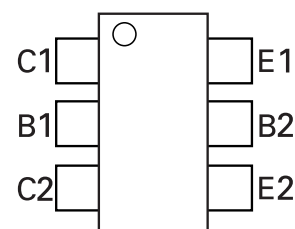
Ordering information

Device	Reel size	Tape width	Quantity per reel
ZXTC2045E6TA	7"	8mm embossed	3,000
ZXTC2045E6TC	13"	8mm embossed	10,000

Device marking

2045

Pin out - top view



Absolute maximum ratings (each transistor)

Parameter	Symbol	Limit		Unit
		NPN	PNP	
Collector-base voltage	BV_{CBO}	40	-40	V
Collector-emitter voltage	BV_{CEV}	40	-40	V
Collector-emitter voltage	BV_{CEO}	30	-30	V
Emitter-base voltage	BV_{EBO}	7	-7	V
Peak pulse current	I_{CM}	5	-5	A
Continuous collector current ^(a)	I_C	1.5	-1.5	A
Base current	I_B	1	-1	A
Power dissipation at $T_A = 25^\circ\text{C}$ ^{(a) (c)} Linear derating factor	P_D	0.9 7.2		W mW/°C
Power dissipation at $T_A = 25^\circ\text{C}$ ^{(a) (d)} Linear derating factor	P_D	1.1 8.8		W mW/°C
Power dissipation at $T_A = 25^\circ\text{C}$ ^{(b) (c)} 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) (c)}	$R_{\theta JA}$	139	°C/W
Junction to ambient ^{(b) (c)}	$R_{\theta JA}$	73	°C/W
Junction to ambient ^{(a) (d)}	$R_{\theta JC}$	113	°C/W

NOTES:

(a) For a device surface mounted on 25mm x 25mm x 0.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.

(b) As above measured at $t < 5$ seconds.

(c) For device with one active die.

(d) For device with two active dice running at equal power.

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Electrical characteristics (at $T_{AMB} = 25^{\circ}\text{C}$ unless otherwise stated)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	$(-)40^{(*)}$			V	$I_C = (-)100\mu\text{A}$
Collector-emitter breakdown voltage	BV_{CEV}	$(-)40^{(*)}$			V	$I_C = (-)1\mu\text{A}$ $0.25\text{V} > V_{BE} > 1.0\text{V}$ ($0.25\text{V} < V_{BE} < 1.0\text{V}$)
Collector-emitter breakdown voltage	BV_{CEO}	$(-)30^{(*)}$			V	$I_C = (-)10\text{mA}$ ^(†)
Emitter-base breakdown voltage	BV_{EBO}	$(-)7^{(*)}$	$(-)8.5^{(*)}$		V	$I_E = (-)100\mu\text{A}$
Collector cut-off current	I_{CBO}		$(-) < 1^{(*)}$	$(-)20^{(*)}$	nA	$V_{CB} = (-)32\text{V}$
Collector cut-off current	$I_{CES/R}$		$(-) < 1^{(*)}$	$(-)20^{(*)}$	nA	$V_{CE} = (-)16\text{V}$, $R \leq 1\text{k}\Omega$
Emitter cut-off current	I_{EBO}		$(-) < 1^{(*)}$	$(-)20^{(*)}$	nA	$V_{EB} = (-)6\text{V}$
Collector-emitter saturation voltage	$V_{CE(SAT)}$			$(-)375^{(*)}$	mV	$I_C = (-)0.75\text{A}$, $I_B = (-)15\text{mA}$ ^(†)
Base-emitter saturation voltage	$V_{BE(SAT)}$			$(-)1.2^{(*)}$	V	$I_C = (-)0.75\text{A}$, $I_B = (-)15\text{mA}$ ^(†)
Static forward current transfer ratio	h_{FE}	180	300	500		$I_C = (-)100\text{mA}$, $V_{CE} = (-)2\text{V}$ ^(†)

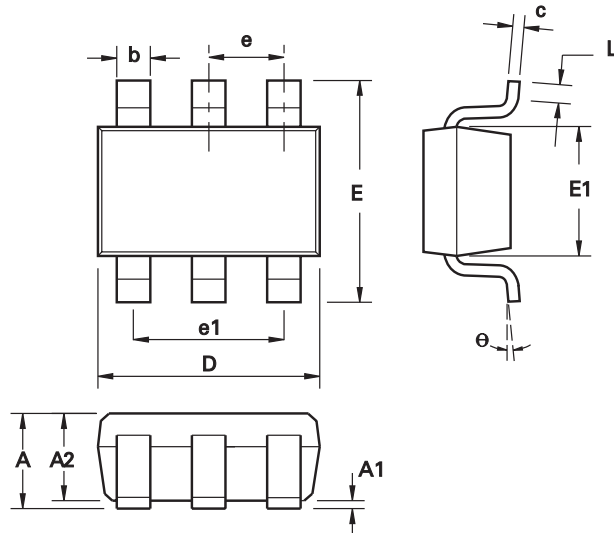
NOTES:

(*) () applies to PNP

(†) Measured under pulsed conditions. Pulse width ≤ 300 s; duty cycle $\leq 2\%$.

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Package details - SOT23-6



DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.45	0.354	0.0570
A1	0.00	0.15	0.00	0.0059
A2	0.90	1.30	0.0354	0.0511
b	0.35	0.50	0.0078	0.0196
C	0.09	0.26	0.0035	0.0102
D	2.70	3.10	0.1062	0.1220
E	2.20	3.20	0.0866	0.1181
E1	1.30	1.80	0.0511	0.0708
L	0.10	0.60	0.0039	0.0236
e	0.95 REF		0.0374 REF	
e1	1.90 REF		0.0748 REF	
L	0°	30°	0°	30°

Note: Controlling dimensions are in millimeters. Approximate dimensions are provided in inches

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