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# FCX555

## 180V High voltage PNP switching transistor in SOT89

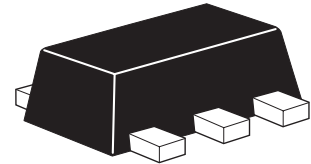
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### Summary

$BV_{CEV} > -180V$

### Description

Packaged in the SOT89 outline this new high gain medium power PNP transistor offers 180V forward blocking capability making it ideal for use in VOIC and various driving and power management functions.

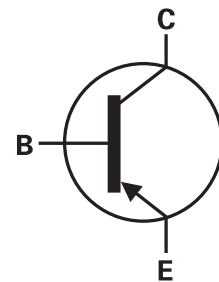


### Features

- 180 volts forward blocking

### Applications

- Voice over internet protocol (VOIC)
- MOSFET gate drivers
- Power switches
- Motor control



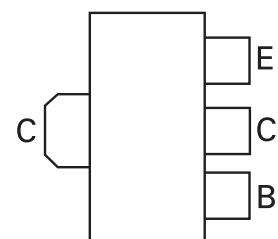
### Ordering information

Device	Reel size	Tape width	Quantity per reel
FCX555TA	7"	12mm embossed	1,000

### Device marking

555

### Pin out - top view



## Absolute maximum ratings

Parameter	Symbol	Limit	Unit
Collector-base voltage	$V_{CBO}$	-180	V
Collector-emitter voltage	$V_{CEV}$	-180	V
Emitter-base voltage	$V_{EBO}$	-7	V
Continuous collector current <sup>(a)</sup>	$I_C$	-0.7	A
Peak pulse current	$I_{CM}$	-2	A
Power dissipation at $T_A = 25^\circ\text{C}^{(a)}$	$P_D$	1.5	W
Linear derating factor		12	mW/°C
Power dissipation at $T_A = 25^\circ\text{C}^{(b)}$	$P_D$	2.1	W
Linear derating factor		16.8	mW/°C
Operating and storage temperature range	$T_j; T_{stg}$	-55 to +150	°C

## Thermal resistance

Parameter	Symbol	Value	Unit
Junction to ambient <sup>(a)</sup>	$R\theta_{JA}$	83	°C/W

### NOTES:

- (a) For a device surface mounted on 25mm x 25mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.
- (b) For a device surface mounted on 50mm x 50mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.

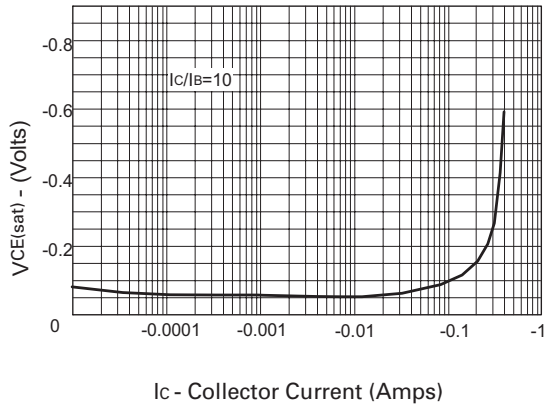
## Electrical characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	-180			V	$I_C = -100\mu A$
Collector-emitter breakdown voltage	$BV_{CEV}$	-180			V	$I_C = -1\mu A$ , $-0.3V < V_{BE} < 1V$
Collector-emitter breakdown voltage	$BV_{CER}$	-180			V	$I_C = -1\mu A$ , $R_B \leq 1k\Omega$
Emitter-base breakdown voltage	$BV_{EBO}$	-7	-8.1		V	$I_E = -100\mu A$
Collector-emitter breakdown voltage	$BV_{CEO}$	-150			V	$I_C = -10mA^{(*)}$
Collector cut-off current	$I_{CBO}$		<1	-20 -10	nA $\mu A$	$V_{CB} = -144V$ $V_{CB} = -144V$ , $T_{AMB} = 100^\circ C$
Emitter cut-off current	$I_{EBO}$		<1	-20	nA	$V_{EB} = -6V$
Collector emitter saturation voltage	$V_{CE(SAT)}$			-300 -400	mV mV	$I_C = -0.1A$ , $I_B = -10mA^{(*)}$ $I_C = -0.25A$ , $I_B = -25mA^{(*)}$
Base-emitter saturation voltage	$V_{BE(SAT)}$			-1000	mV	$I_C = -250mA$ , $I_B = -25mA^{(*)}$
Base-emitter turn-on voltage	$V_{BE(ON)}$			-950	mV	$I_C = -250mA$ , $V_{CE} = -5V^{(*)}$
Static forward current transfer ratio	$h_{FE}$	100 100		300		$I_C = -10mA$ , $V_{CE} = -5V^{(*)}$ $I_C = -100mA$ , $V_{CE} = -5V^{(*)}$
Transition frequency	$f_T$		100		MHz	$I_C = -50mA$ , $V_{CE} = -10V$ , $f = 100MHz$
Output capacitance	$C_{OBO}$			10	pF	$V_{CB} = -10V$ , $f = 1MHz^{(*)}$

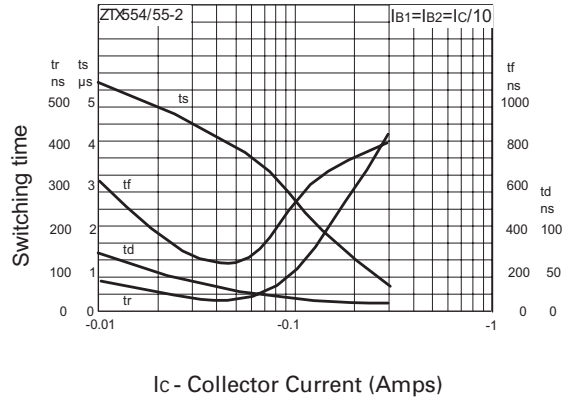
**NOTES:**

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

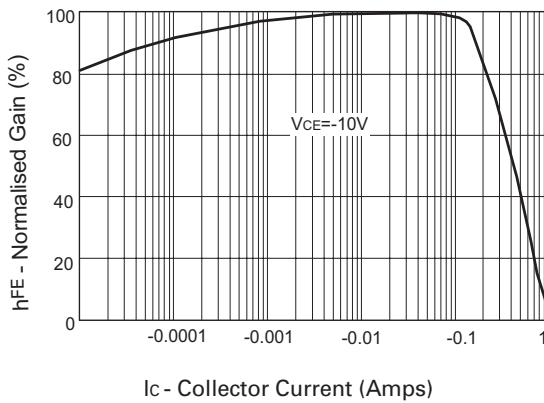
## Typical characteristics



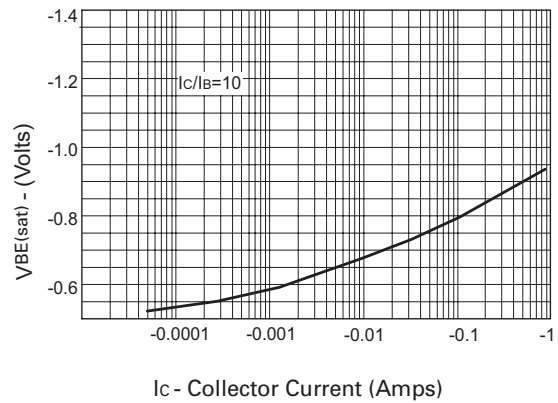
**VCE(sat) v IC**



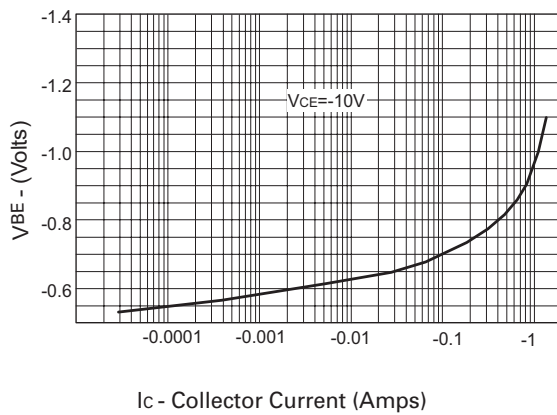
**Switching Speeds**



**hFE v IC**



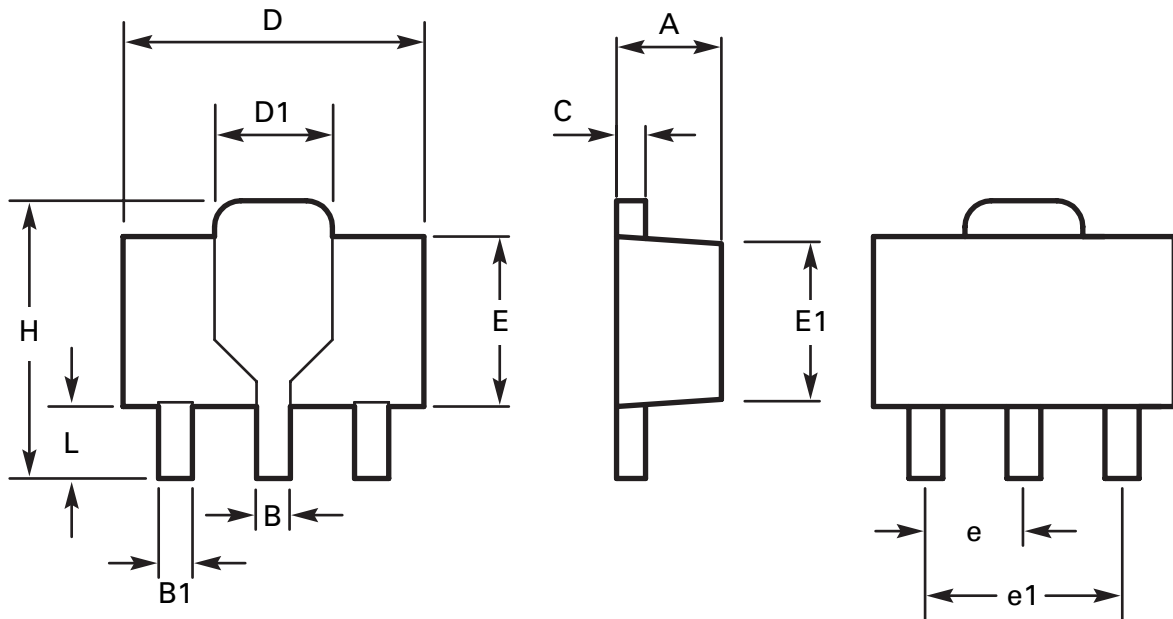
**VBE(sat) v IC**



**VBE(on) v IC**

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## SOT89 Packaging details



DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min	Max	Min	Max		Min	Max	Min	Max
A	1.40	1.60	0.550	0.630	E1	2.13	2.29	0.084	0.090
B	0.44	0.56	0.017	0.022	e	1.50 BSC		0.059 BSC	
B1	0.36	0.48	0.014	0.019	e1	3.00 BSC		0.118 BSC	
C	0.35	0.44	0.014	0.019	H	3.94	4.25	0.155	0.167
D	4.40	4.60	0.173	0.181	L	0.89	1.20	0.155	0.167
E	2.29	2.60	0.090	0.102		-	-	-	-

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

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