

FCX1051A **SOT89 NPN medium power transistor**

Summary

 $BV_{CEO} > 40V$

 $I_{C(cont)} = 3A$

V_{CE(sat)} < 120mV @ 1A

 $R_{CE(sat)} = 57m\Omega$

 $P_D = 2W$

Complimentary type - FCX1151A

Description

An NPN low voltage, high gain bipolar transistor offering very low saturation voltage and excellent current handling in the SOT89 package.

Features

- · Very low saturation voltage
- · High gain
- Small outline package

Applications

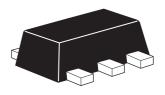
- · Motor drive
- · Strobe flash

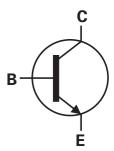
Device mark

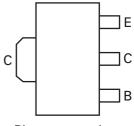
- · MOSFET and IGBT gate driving
- DC -DC converters

Ordering information

Device	Reel size (inches)	Tape width (mm)	Quantity per reel
FCX1051ATA	7	12	1,000







Pinout - top view

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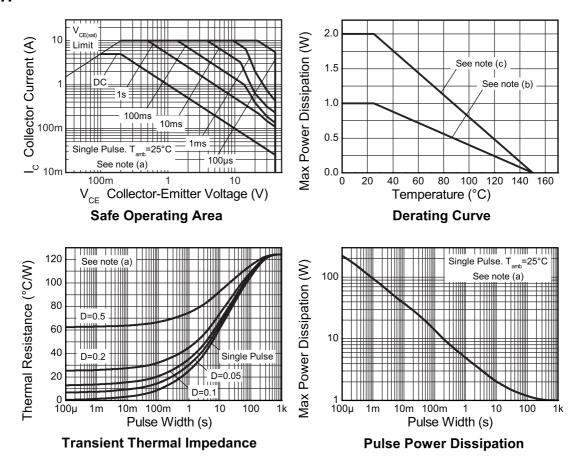
Absolute maximum ratings

Parameter	Symbol	Value	Unit
Collector-base voltage	V _{CBO}	150	V
Collector-emitter voltage	V _{CEO}	40	V
Emitter-base voltage	V _{EBO}	5	V
Peak pulse current ^(a)	I _{CM}	10	А
Continuous collector current	I _C	3	А
Power dissipation at T _{amb} = 25°C	P _{tot}	1 ^(b)	W
		2 ^(c)	W
Operating and storage temperature range	T _j ;T _{stg}	-55 to +150	°C

NOTES:

- (a) Measured under pulsed conditions. Pulse width=300µs. Duty cycle ≤2%. Spice parameter data is available upon request for these devices. Refer to the handling instructions for soldering surface mount components.
- (b) Recommended P_{tot} calculated using FR4 measuring 15x15x0.6mm.
- (c) Maximum power dissipation is calculated assuming that the device is mounted on FR4 substrate measuring 40x40x0.6mm and using comparable measurement methods adopted by other suppliers.

Typical characteristics



Electrical characteristics (@ $T_{amb} = 25$ °C unless otherwise stated)

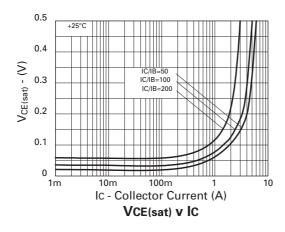
Parameter	Symbol	Min.	Тур.	Мах.	Unit	Conditions
Collector-base breakdown voltage	V _{(BR)CBO}	150			V	I _C = 100μA
Collector-emitter breakdown voltage	V _{CES}	150			V	I _C = 100μA
Collector-emitter breakdown voltage	V _{CEO}	40			V	I _C = 10mA
Collector-emitter breakdown voltage	V _{CEV}	150			V	$I_C = 100 \mu A, V_{EB} = 1 V$
Emitter-base breakdown voltage	V _{(BR)EBO}	5			V	I _E = 100μA
Collector cut-off current	I _{CBO}		0.3	10	nA	V _{CB} = 120V
Emitter cut-off current	I _{EBO}		0.3	10	nA	V _{EB} = 4V
Collector emitter cut- off current	I _{CES}		0.3	10	nA	V _{CES} = 120V
Collector-emitter	V _{CE(sat)}		17	25	mV	I _C = 0.2A, I _B = 10mA ^(*)
saturation voltage			85	120	mV	$I_C = 1A$, $I_B = 10mA^{(*)}$
			140	180	mV	I _C = 2A, I _B = 20mA ^(*)
			170	250	mV	I _C = 3A, I _B = 40mA ^(*)
			250	340	mV	I _C = 5A, I _B = 100mA ^(*)
Base-emitter saturation voltage	V _{BE(sat)}		880	1000	mV	I _C = 3A, I _B = 40mA ^(*)
Base-emitter turn-on voltage	V _{BE(on)}		840	950	mV	$I_C = 3A$, $V_{CE} = 2V^{(*)}$
Static forward current	h _{FE}	290	440	1200		I _C = 10mA, V _{CE} = 2V ^(*)
transfer ratio		270	450			$I_C = 1A$, $V_{CE} = 2V^{(*)}$
		270	360			$I_C = 3A$, $V_{CE} = 2V^{(*)}$
		130	220			I _C = 5A, V _{CE} = 2V ^(*)
		40	55			I _C = 10A, V _{CE} = 2V ^(*)
Transition frequency	f _T		155		MHz	I _C = 50mA, V _{CE} = 10V f = 100MHz
Output capacitance	C _{obo}		27	40	pF	V _{CB} = 10V, f = 1MHz
Switching times	t _{on}		220		ns	$I_C = 3A$, $I_B = 30mA$, $V_{CC} = 10V$
	t _{off}		540		ns	$I_C = 3A$, $I_B = 30mA$, $V_{CC} = 10V$

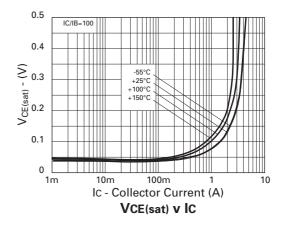
NOTES:

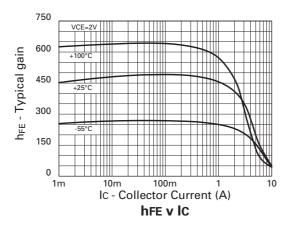
^(*) Measured under pulsed conditions. Pulse width=300 μ s. Duty cycle $\leq\!2\%$.

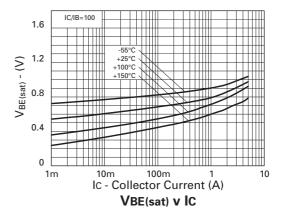
FCX1051A

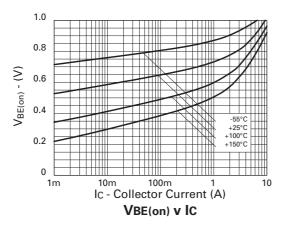
Typical characteristics





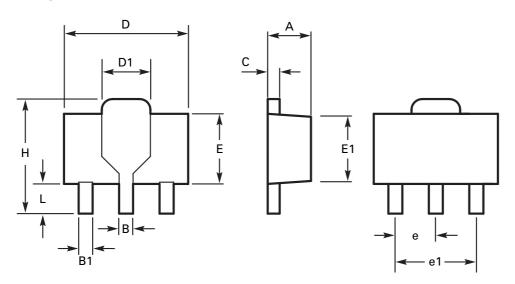






FCX1051A

Package outline - SOT89



DIM	Millin	neters	Inc	hes	DIM	Millimeters		Inches	
	Min	Max	Min	Max		Min	Max	Min	Max
Α	1.40	1.60	0.550	0.630	Е	2.29	2.60	0.090	0.102
В	0.44	0.56	0.017	0.022	E1	2.13	2.29	0.084	0.090
B1	0.36	0.48	0.014	0.019	е	1.50	BSC	0.059	BSC
С	0.35	0.44	0.014	0.017	e1	3.00	BSC	0.118	BSC
D	4.40	4.60	0.173	0.181	Н	3.94	4.25	0.155	0.167
D1	1.52	1.83	0.064	0.072	L	0.89	1.20	0.035	0.047

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

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