

## Power transistor (60V, 3A)

### • Features

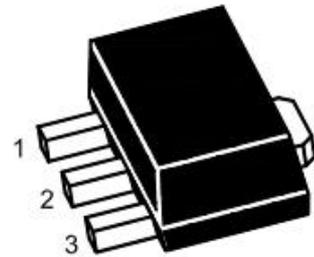
- 1) High speed switching. (Tf : Typ. : 30ns at IC = 3A)
- 2) Low saturation voltage, typically (Typ. : 200mV at IC = 2A, IB = 200mA)
- 3) Strong discharge power for inductive load and capacitance load.
- 4) Complements the 2SA2071.

### • Applications

NPN Silicon epitaxial planar transistor

### • Structure

Low frequency amplifier High speed switching



1.Base 2.Collector 3.Emitter  
SOT-89 Plastic Package

Marking:5824Q/R

### • Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	VCBO	60	V
Collector-emitter voltage	VCEO	60	V
Emitter-base voltage	VEBO	6	V
Collector current	IC	3	A
	ICP	6	A *1
Power dissipation	PC	500	mW *2
	PC	2.0	W *3
Junction temperature	Tj	150	°C
Range of storage temperature	Tstg	-55~+150	°C

\*1 Pw=100ms

\*2 Each terminal mounted on a recommended land.

\*3 Mounted on a 40x40x0.7(mm) ceramic substrate

### • hFE RANK

Q	R
120-270	180-390

• **Electrical characteristics** (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BVCBO	60	-	-	V	IC=100μA
Collector-emitter breakdown voltage	BVCEO	60	-	-	V	IC=1mA
Emitter-base breakdown voltage	BVEBO	6	-	-	V	IE=100μA
Collector cut-off current	ICBO	-	-	1.0	μA	VCB=40V
Emitter cut-off current	IEBO	-	-	1.0	μA	VEB=4V
Collector-emitter saturation voltage	VCE(sat)	-	200	500	mV	IC=2A, IB=200mA *1
DC current gain	hFE	120	-	390	-	VCE=2V, IC=100mA
Transition frequency	fT	-	200	-	MHz	VCE=10V, IE=-100mA, f=10MHz *
Collector output capacitance	Cob	-	20	-	pF	VCB=10V, IE=0mA, f=1MHz
Turn-on time	Ton	-	50	-	ns	IC=3A, IB1=300mA, IB2=-300mA, VCC 25V *2
Storage time	Tstg	-	150	-	ns	
Fall time	Tf	-	30	-	ns	

\*1 Non repetitive pulse  
\*2 See switching characteristics measurement circuits

• **Electrical characteristic curves**

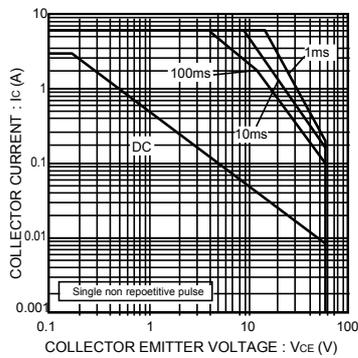


Fig.1 Safe operating area

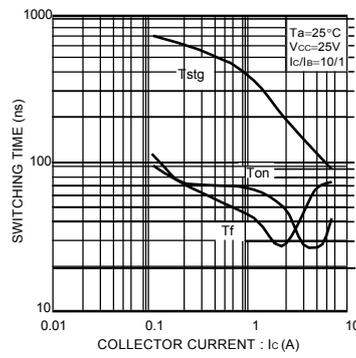


Fig.2 Switching Time

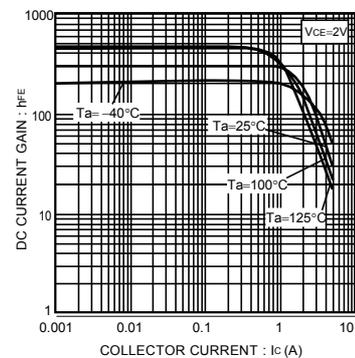


Fig.3 DC current gain vs. collector current

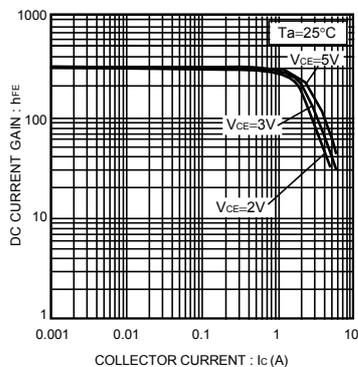


Fig.4 DC current gain vs. collector current

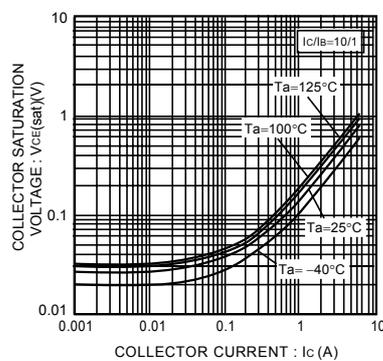


Fig.5 Collector-emitter saturation voltage vs. Collector Current

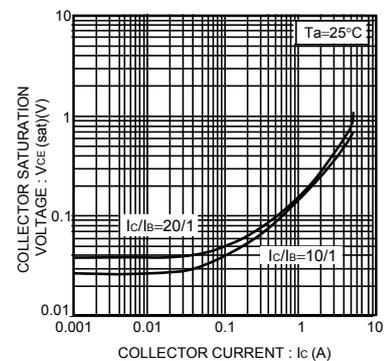


Fig.6 Collector-emitter saturation voltage vs. collector current

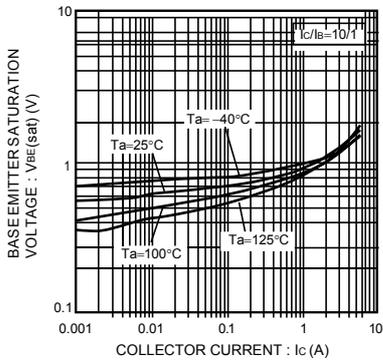


Fig.7 Base-emitter saturation voltage vs. collector current

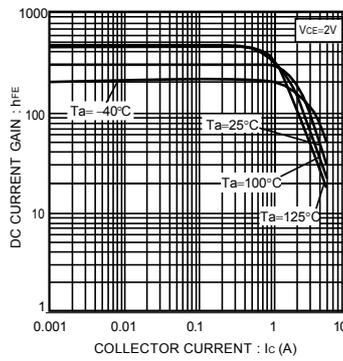


Fig.3 DC current gain vs. collector current

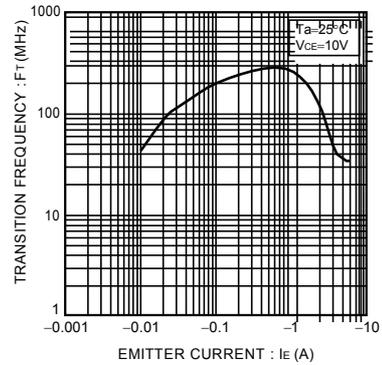


Fig.9 Transition frequency

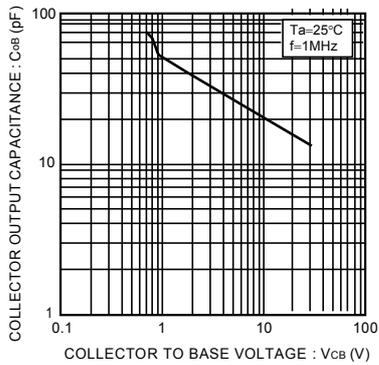


Fig.10 Collector output capacitance

### • Switching characteristics measurement circuits

