

Applications

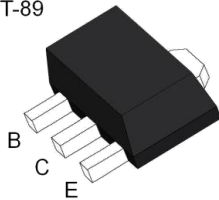
- Supply line switching
- Battery charger
- DC/DC converter
- LCD backlighting.

Features

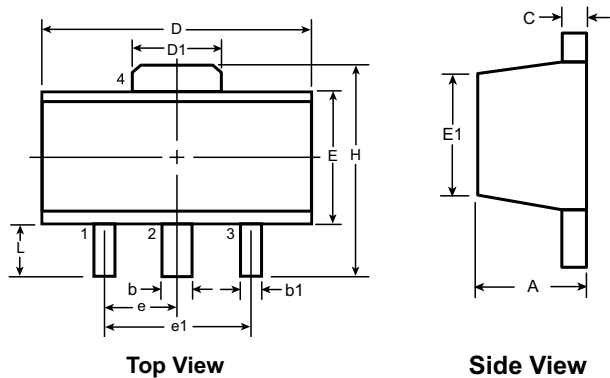
- Low collector-to-emitter saturation voltage.
- High current capability
- Higher efficiency leading to less heat generation
- Reduced printed-circuit board requirements.
- Complement the PBSS5350X

Marking : S43

SOT-89



SOT-89 PACKAGE OUTLINE



Symbol		A	b	b1	C	D	D1	E	E1	e	e1	H	L
Dimensions (mm)	MIN	1.40	0.44	0.36	0.3	4.40	1.50	2.29	2.00†	1.50 BSC	3.00 BSC	3.94	0.89
	NOM	-	-	-	-	-	-	-	-			-	-
	MAX	1.60	0.56	0.48	0.5	4.60	1.75	2.60	2.29			4.25	1.20

Dimensions in mm

Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Value	Unit
Collector-base voltage		BV_{CBO}	50	V
Collector-emitter voltage		BV_{CEO}	50	V
Emitter-base voltage		BV_{EBO}	5	V
Collector current (DC)		I_C	3	A
Collector current (Pulse)		I_{CP}	5	A
Base current (DC)		I_B	0.5	A
Total power dissipation	Note1	P_{tot}	0.55	W
	Note2		1	
	Note3		1.4	
	Note4		1.6	
Junction temperature		T_j	150	°C
Storage temperature		T_{stg}	-55~150	°C

PBSS4350X NPN

Characteristics electrical Characteristics (Ta=25°C)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	BV_{CBO}	$I_C = 100\mu A, I_E = 0$	50			V
Collector-emitter breakdown voltage	BV_{CEO}	$I_C = 1mA, I_B = 0$	50			V
Emitter-base breakdown voltage	BV_{EBO}	$I_E = 100\mu A, I_C = 0$	5			V
Collector cut-off current	I_{CBO}	$V_{CB} = 50V, I_E = 0$			100	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5V, I_C = 0$			100	nA
DC current gain*	h_{FE}	$V_{CE} = 2V, I_B = 0.1A$	300			
		$V_{CE} = 2V, I_B = 0.5A$	300			
		$V_{CE} = 2V, I_B = 1A$	300		700	
		$V_{CE} = 2V, I_B = 2A$	200			
		$V_{CE} = -2V, I_B = -3A$	100			
Collector-emitter saturation voltage*	$V_{CE(sat)}$	$I_C = 500mA, I_B = 50mA$			80	mV
		$I_C = 1A, I_B = 50mA$			160	
		$I_C = 2A, I_B = 100mA$			280	
		$I_C = 2A, I_B = 200mA$			260	
		$I_C = 3A, I_B = 300mA$			370	
Equivalent on-resistance	$R_{CE(sat)}$	$I_C = 2A, I_B = 200mA$			130	mΩ
Base-emitter saturation voltage*	$V_{BE(sat)}$	$I_C = 2A, I_B = 100mA$			1.1	V
		$I_C = 3A, I_B = 300mA$			1.2	
Base-emitter turn on voltage	$V_{BE(on)}$	$V_{CE} = 2V, I_C = 1A$			1.1	V
Transition frequency	f_T	$V_{CE} = 5V, I_E = 100mA$ $f = 100MHz$	100			MHz
Collector output Capacitance	C_{ob}	$V_{CB} = 10V, I_E = 0, f = 1MHz$			35	pF

* Pulse Test: PW=300μs, duty Cycle=2% Pulsed

Thermal Characteristics

Parameter	Symbol	Conditions	Value	Unit
Thermal resistance from junction to ambient	$R_{th(j-a)}$	in free air; Note1	225	°C / W
		Note2	125	
		Note3	90	
		Note4	80	
Thermal resistance from junction to soldering point	$R_{th(j-s)}$		16	°C / W

Notes

1. Device mounted on a printed-circuit board, single sided copper, tinplated and standard footprint.
2. Device mounted on a printed-circuit board, single sided copper, tinplated and mounting pad for collector 1 cm²
3. Device mounted on a printed-circuit board, single sided copper, tinplated and mounting pad for collector 6 cm²
4. Device mounted on a ceramic printed-circuit board 7cm², single-sided copper, tinplated.

RATING AND CHARACTERISTIC CURVES (PBSS4350X)

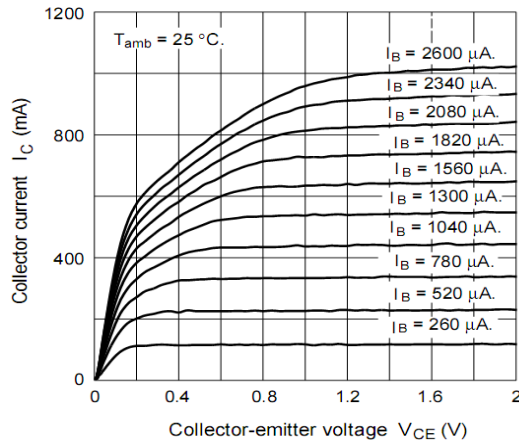


Figure 1. Static Characteristic

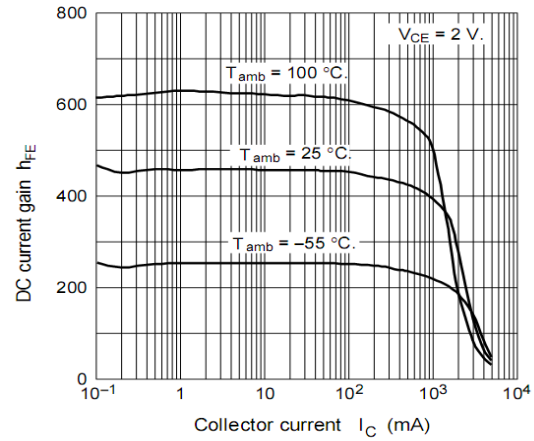


Figure 2. DC current Gain

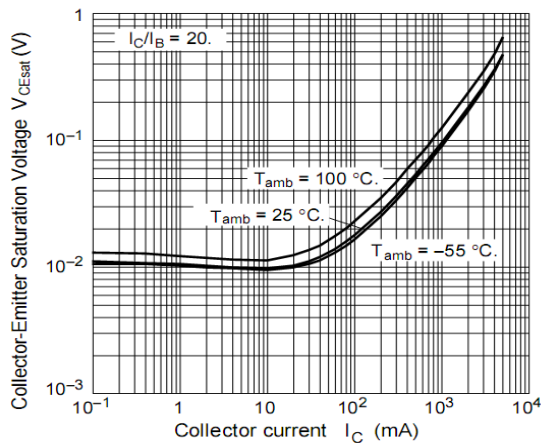


Figure 3. Collector-Emitter Saturation Voltage

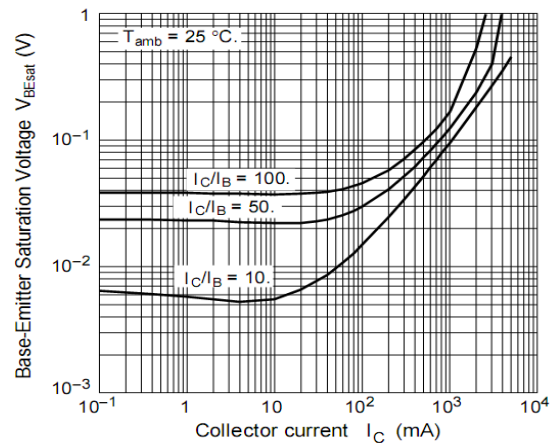


Figure 4. Base-Emitter Saturation Voltage

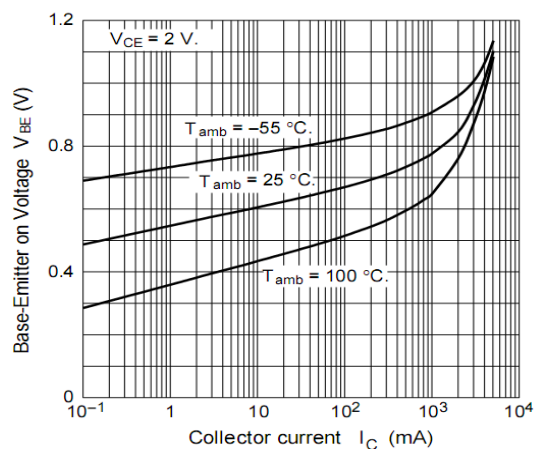


Figure 5. Base-Emitter on Voltage

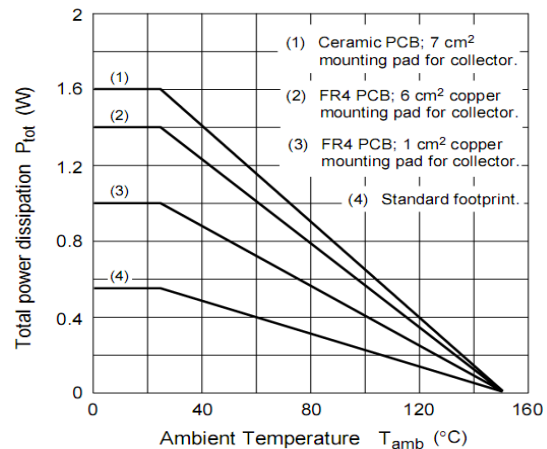


Figure 6. Power derating curves.