

ABCX51/52/53-HF Series (PNP)

RoHS Device

Halogen Free



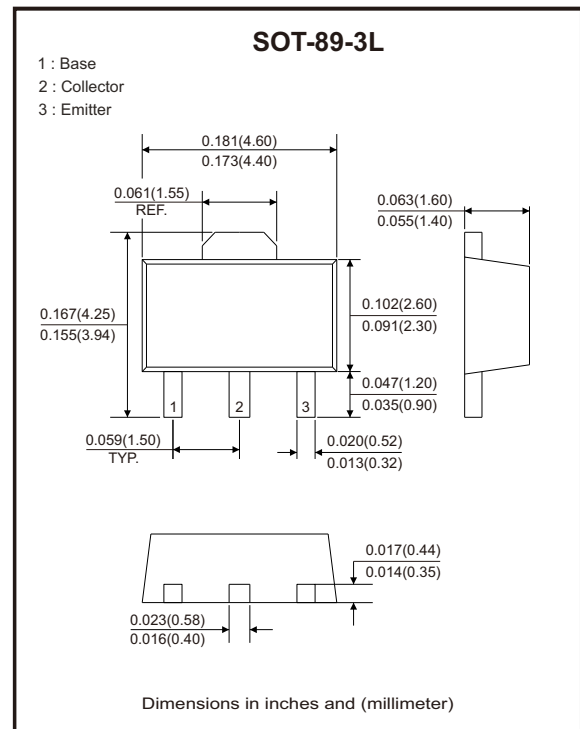
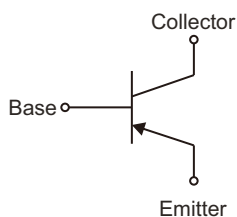
Features

- High collector current.
- Low collector-emitter saturation voltage.
- AEC-Q101 Qualified.

Mechanical data

- Case: SOT-89-3L, molded plastic.
- Mounting position: Any.

Circuit Diagram



Maximum Ratings (at T_J=25°C unless otherwise noted)

Parameter	Symbol	ABCX51-XX-HF	ABCX52-XX-HF	ABCX53-XX-HF	Unit
Collector-base voltage	V _{CBO}	-45	-60	-100	V
Collector-emitter voltage	V _{CEO}	-45	-60	-80	V
Emitter-base voltage	V _{EBO}	-5			V
Collector continuous current	I _C	-1			A
Collector power dissipation (Note 1)	P _C	0.5			W
Thermal resistance from junction to ambient (Note 1)	R _{θJA}	250			°C/W
Collector power dissipation (Note 2)	P _C	2			W
Thermal resistance from junction to ambient (Note 2)	R _{θJA}	61.5			°C/W
Operation junction and storage temperature range	T _J , T _{STG}	-55 to +150			°C

Electrical Characteristics (at $T_J=25^\circ\text{C}$ unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Collector-base breakdown voltage	ABCX51 ABCX52 ABCX53 $I_C = -0.1\text{mA}$, $I_E = 0\text{A}$	$V_{(BR)CBO}$	-45 -60 -100			V
Collector-emitter breakdown voltage (Note 3)	ABCX51 ABCX52 ABCX53 $I_C = -10\text{mA}$, $I_B = 0\text{A}$	$V_{(BR)CEO}$	-45 -60 -80			V
Emitter-base breakdown voltage	$I_E = -100\mu\text{A}$, $I_C = 0\text{A}$	$V_{(BR)EBO}$	-5			V
Collector cut-off current	$V_{CB} = -30\text{V}$, $I_E = 0\text{A}$	I_{CBO}			-0.1	μA
Emitter cut-off current	$V_{EB} = -5\text{V}$, $I_C = 0\text{A}$	I_{EBO}			-0.1	μA
DC current gain (Note 3)	$V_{CE} = -2\text{V}$, $I_C = -5\text{mA}$	$h_{FE(1)}$	63			
	$V_{CE} = -2\text{V}$, $I_C = -150\text{mA}$	$h_{FE(2)}$	63		250	
	$V_{CE} = -2\text{V}$, $I_C = -500\text{mA}$	$h_{FE(3)}$	40			
Collector-emitter saturation voltage (Note 3)	$I_C = -500\text{mA}$, $I_B = -50\text{mA}$	$V_{CE(sat)}$			-0.5	V
Base-emitter voltage (Note 3)	$I_C = -500\text{mA}$, $V_{CE} = -2\text{V}$	V_{BE}			-1	V
Transition frequency	$V_{CE} = -5\text{V}$, $I_C = -10\text{mA}$, $f = 100\text{MHz}$	f_T		50		MHz

Classification Of $h_{FE(2)}$

Part No.	ABCX51-10-HF	ABCX52-10-HF	ABCX53-10-HF	ABCX51-16-HF	ABCX52-16-HF	ABCX53-16-HF
Range	63~160			100~250		

Notes: 1. Measured with the device mounted on 1cm x 1cm x 0.8mm FR-4 board with no copper, in a still air environment with $T_a=25^\circ\text{C}$.
 2. Measured with the device mounted on 2.54cm x 2.54cm x 1.6mm FR-4 board with double sided 1oz copper, in a still air environment with $T_a=25^\circ\text{C}$.
 3. Pulse test.

Typical Rating and Characteristic Curves (ABCX51/52/53-HF Series)

Fig.1 - Static Characteristic

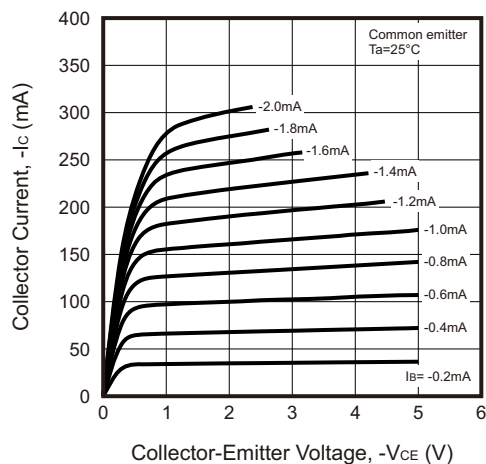
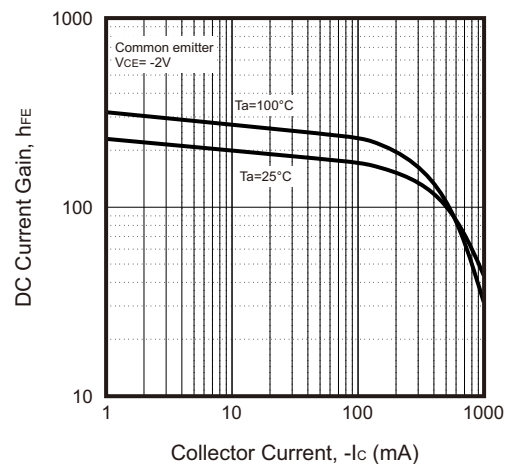


Fig.2 - $h_{FE} - I_C$



Typical Rating and Characteristic Curves (ABCX51/52/53-HF Series)

Fig.3 - V_{BEsat} — I_c

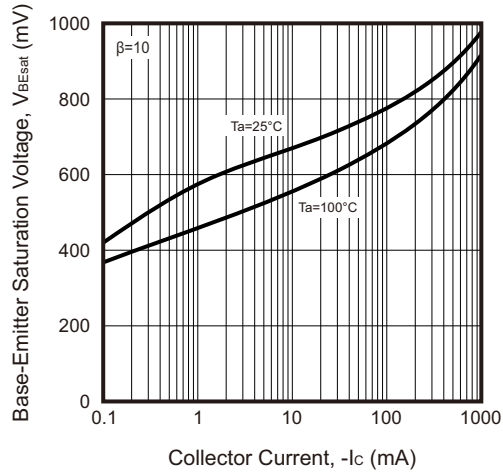


Fig.4 - V_{CEsat} — I_c

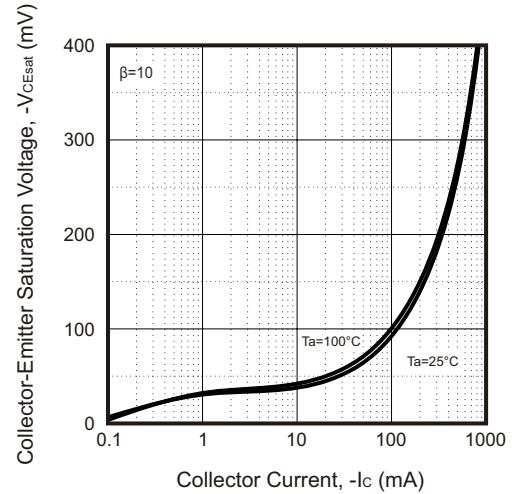


Fig.5 - f_r — I_c

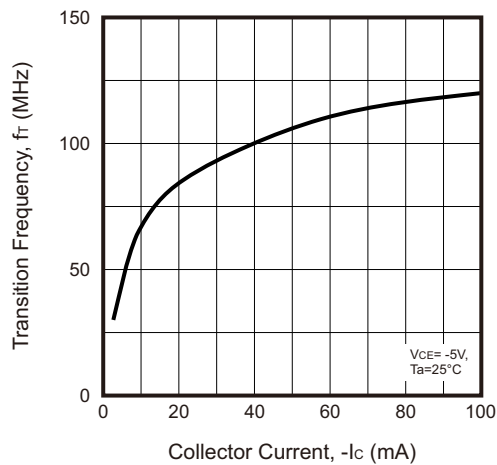


Fig.6 - C_{ob}/C_{ib} — V_{CB}/V_{EB}

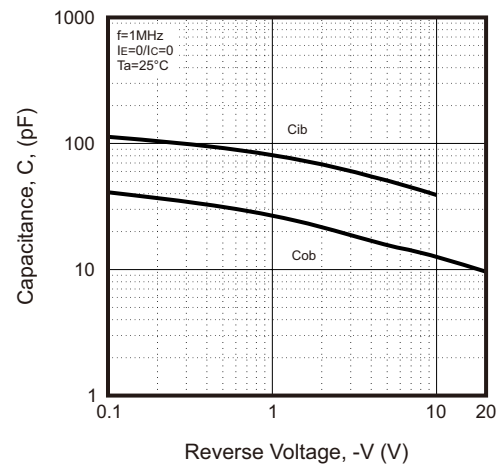


Fig.7 - I_c — V_{BE}

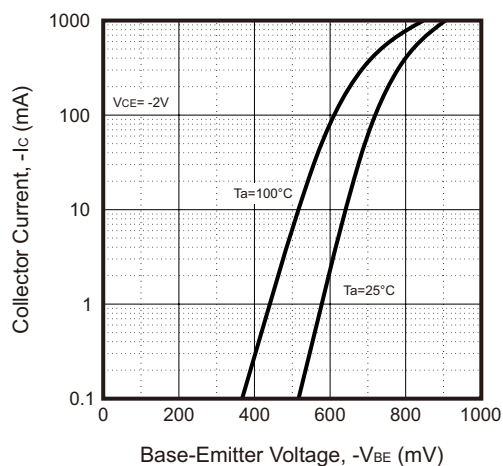
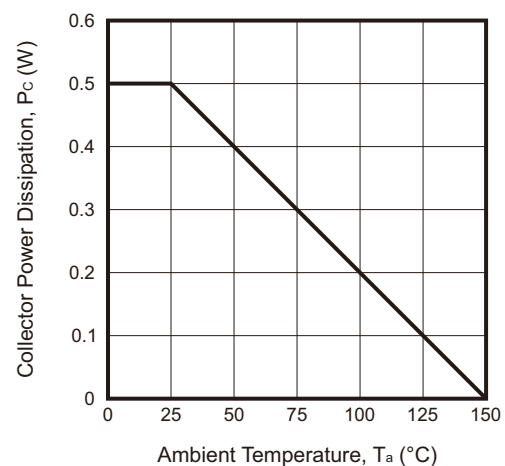
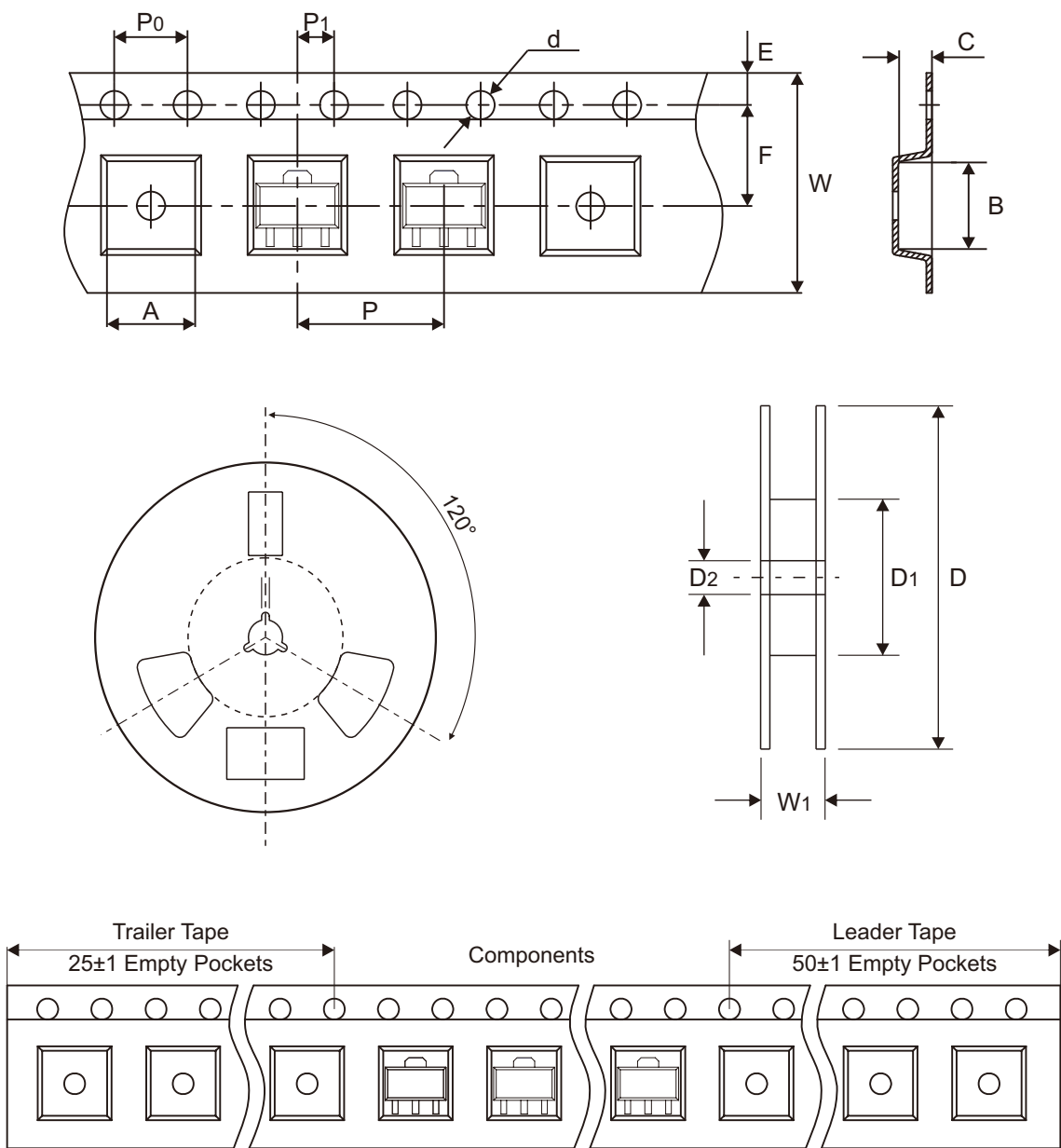


Fig.8 - P_c — T_a



Reel Taping Specification

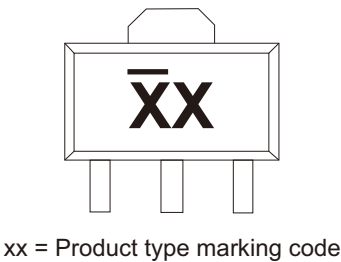


SOT-89-3L	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	4.85 ± 0.10	4.45 ± 0.10	1.85 ± 0.10	1.50 + 0.10	180.00 ± 1.00	60.00 ± 1.50	13.20 ± 0.20
	(inch)	0.191 ± 0.004	0.175 ± 0.004	0.073 ± 0.004	0.059 + 0.004	7.087 ± 0.039	2.362 ± 0.059	0.520 ± 0.008

SOT-89-3L	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	5.50 ± 0.05	8.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	12.00 + 0.30 - 0.10	16.50 + 2.00 - 1.00
	(inch)	0.069 ± 0.004	0.217 ± 0.002	0.315 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.472 + 0.012 - 0.004	0.650 + 0.079 - 0.039

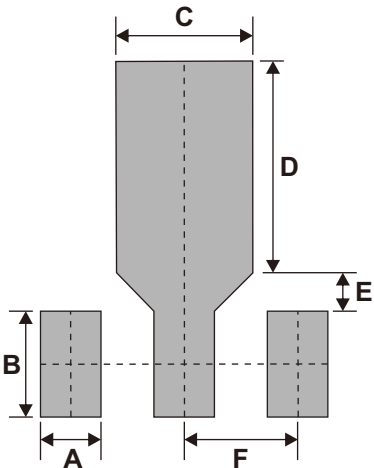
Marking Code

Part Number	Marking Code
ABCX51-10-HF	AC
ABCX52-10-HF	AG
ABCX53-10-HF	AK
ABCX51-16-HF	AD
ABCX52-16-HF	AM
ABCX53-16-HF	AL



Suggested P.C.B. PAD Layout

SIZE	SOT-89-3L	
	(mm)	(inch)
A	0.80	0.031
B	1.40	0.055
C	1.80	0.071
D	2.80	0.110
E	0.50	0.020
F	1.50	0.059



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-89-3L	1,000	7