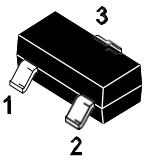
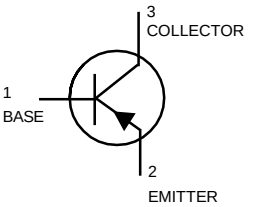
General Purpose Transistors PNP Silicon

1. FEATURES

- Silicon PNP transistor in a SOT-23 Plastic Package
- High DC Current Gain, Low Collector to Emitter Saturation Voltage, Qualified to AEC-Q101 Standards for High Reliability, HF Product.
- General purpose amplifier and switching, Meet the stringent requirements of automotive applications



SOT-23



2. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
2N3906S-AB	Q2A	3000/Tape&Reel

3. MAXIMUM RATINGS(Ta = 25ºC)

Parameter	Symbol	Limits	Unit
Collector–Emitter Voltage	VCEO	-40	Vdc
Collector–Base Voltage	VCBO	-40	Vdc
Emitter–Base Voltage	VEBO	-5	Vdc
Collector Current — Continuous	IC	-200	mAdc

4. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Total Device Dissipation, FR−5 Board (Note 1) @ TA = 25ºC Derate above 25ºC	PD	 225 1.8	 mW mW/ºC
Thermal Resistance, Junction–to–Ambient(Note 1)	RθJA	556	ºC/W
Junction and Storage temperature	TJ,Tstg	−55~+150	ºC

1. FR–5 = 1.0×0.75×0.062 in.

5. ELECTRICAL CHARACTERISTICS (Ta= 25ºC)

OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Collector–Emitter Breakdown Voltage (IC = -1.0 mAdc, IB = 0)	VBR(CEO)	-40	-	-	V
Collector–Base Breakdown Voltage (IC = -10 μAdc, IE = 0)	VBR(CBO)	-40	-	-	V
Emitter–Base Breakdown Voltage (IE = -10 μAdc, IC = 0)	VBR(EBO)	-5	-	-	V
Collector ~ Base Leakage Current (VCE = -30 Vdc, IE = 0)	ICBO	-	-	-50	nA
Emitter~ Base Leakage Current (VCE = -3V, IC =0V)	IEBO	-	-	-50	nA

ON CHARACTERISTICS (Note 2.)

DC Current Gain	HFE				
(IC = -0.1 mAdc, VCE = -1.0 Vdc)		60	-	-	
(IC = -1.0 mAdc, VCE = -1.0 Vdc)		80	-	-	
(IC = -10 mAdc, VCE = -1.0 Vdc)		100	-	300	
(IC = -50 mAdc, VCE = -1.0 Vdc)		60	-	-	
(IC = -100 mAdc, VCE = -1.0 Vdc)		30	-	-	
Collector–Emitter Saturation Voltage	VCE(sat)				V
(IC = -10 mAdc, IB = -1.0 mAdc)		-	-	-0.25	
(IC = -50 mAdc, IB = -5.0 mAdc)		-	-	-0.4	
Base–Emitter Saturation Voltage	VBE(sat)				V
(IC = -10 mAdc, IB = -1.0 mAdc)		-0.65	-	-0.85	
(IC = -50 mAdc, IB = -5.0 mAdc)		-	-	-0.95	

SMALL–SIGNAL CHARACTERISTICS

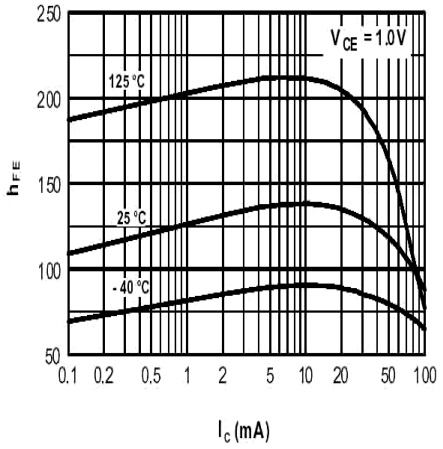
Current–Gain — Bandwidth Product (IC = -10mAdc, VCE= -20Vdc, f = 100MHz)	fT	250	-	-	MHz
Output Capacitance (VCB = -5.0 Vdc, IE = 0, f = 1.0 MHz)	Cobo	-	-	4.5	pF

WITCHING CHARACTERISTICS

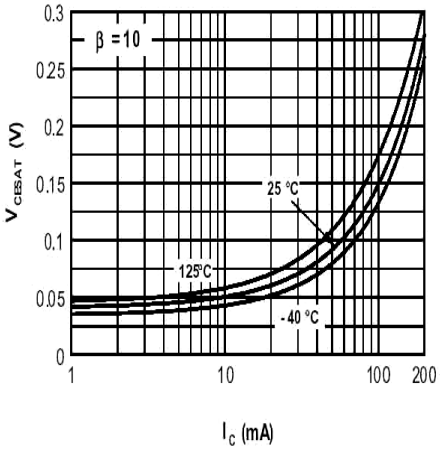
Delay Time	(VCC = -3.0 Vdc,VBE=0.5Vdc, IC = -10mAdc, IB1 = -1.0 mAdc)	td	-	-	35	ns
Rise Time		tr	-	-	35	
Storage Time	(VCC = -3.0 Vdc, IC = -10 mAdc,IB1 = IB2 = -1.0 mAdc)	ts	-	-	225	
Fall Time		tf	-	-	75	

6. ELECTRICAL CHARACTERISTICS CURVES

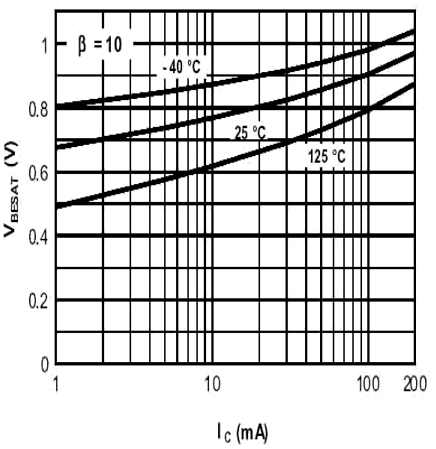
h_{FE} – I_C



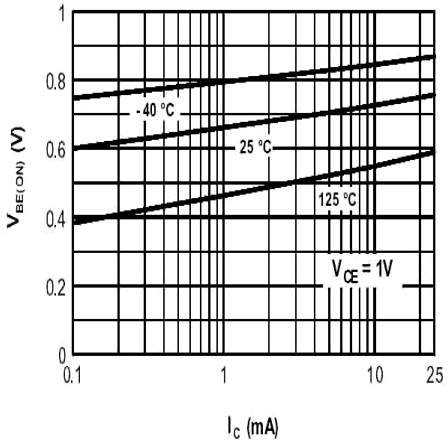
V_{CESAT} – I_C



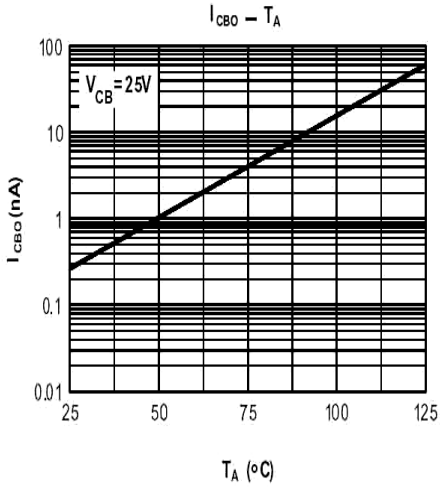
V_{BESAT} – I_C

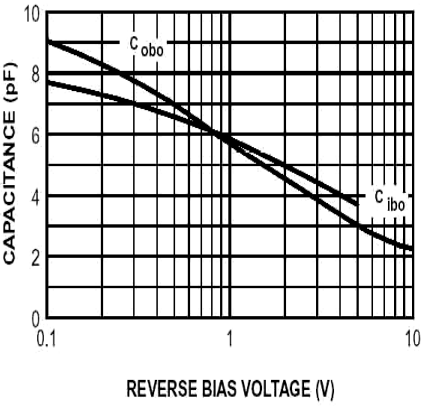


$V_{BE(ON)}$ – I_C

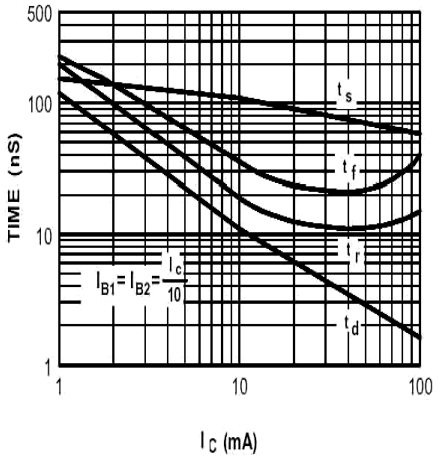


I_{CBO} – T_A

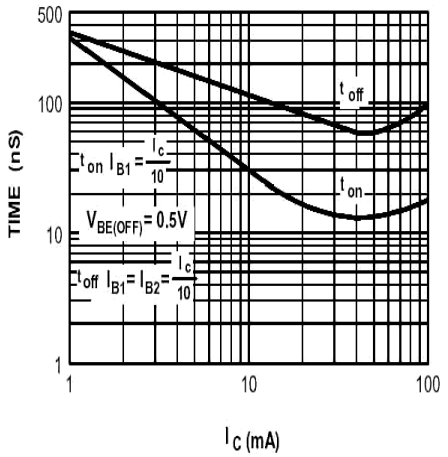




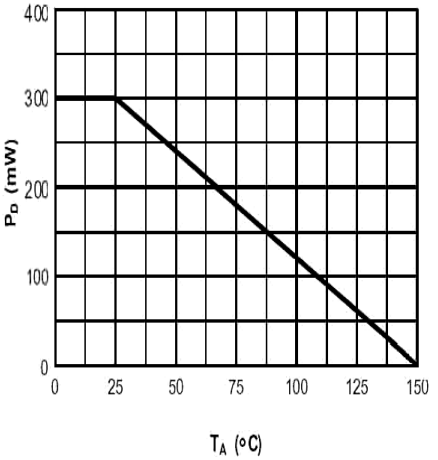
TIME – I_C



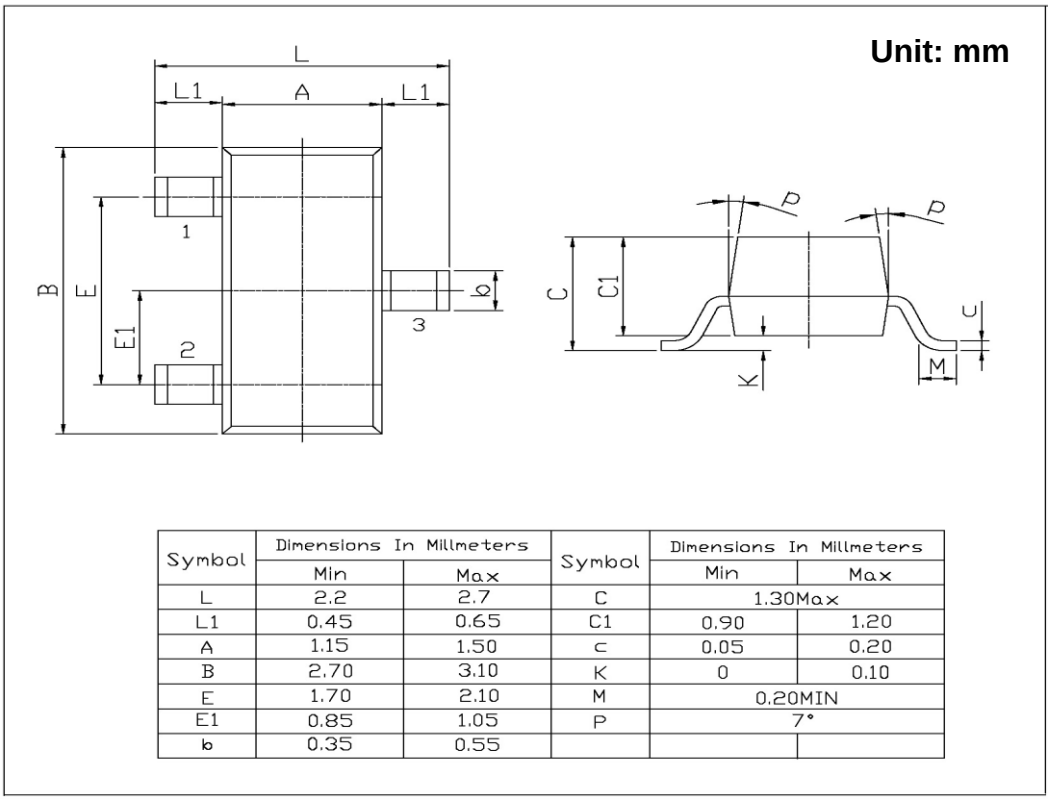
TIME – I_C



P_D – T_A



7. Package Dimensions(SOT-23)



Symbol	Dimensions In Millmeters		Symbol	Dimensions In Millmeters	
	Min	Max		Min	Max
L	2.2	2.7	C	1.30Max	
L1	0.45	0.65	C1	0.90	1.20
A	1.15	1.50	c	0.05	0.20
B	2.70	3.10	K	0	0.10
E	1.70	2.10	M	0.20MIN	
E1	0.85	1.05	P	7°	
b	0.35	0.55			

8.SOLDERING FOOTPRINT

