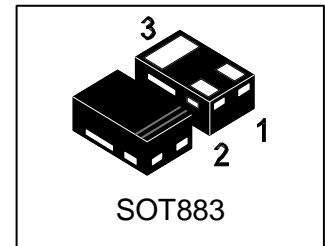


General Purpose Transistors NPN Silicon

1. FEATURES

- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.

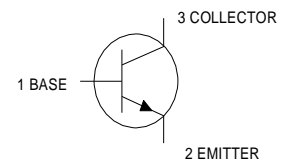


2. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
METR3904BS-G	1A	10000/Tape&Reel

3. MAXIMUM RATINGS(Ta = 25°C)

Parameter	Symbol	Limits	Unit
Collector–Emitter Voltage	V _{CEO}	40	V _{dc}
Collector–Base Voltage	V _{CB0}	60	V _{dc}
Emitter–Base Voltage	V _{EB0}	6	V _{dc}
Collector Current — Continuous	I _C	200	mAdc



4. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Total Device Dissipation, FR-5 Board (Note 1) @ TA = 25°C Derate above 25°C	PD	250 2	mW mW/°C
Thermal Resistance, Junction–to–Ambient(Note 1)	R _{θJA}	500	°C/W
Junction and Storage temperature	T _J , T _{stg}	-55~+150	°C

1. FR-5 = 1.0x0.75x0.062 in.



5. ELECTRICAL CHARACTERISTICS (Ta= 25°C)
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)	60	-	-	V
Emitter–Base Breakdown Voltage (IE = 10 µAdc, IC = 0)	VBR(EBO)	6	-	-	V
Collector Cutoff Current (VCE = 30 Vdc, VEB = 3.0Vdc)	ICEX	-	-	50	nA
Base Cutoff Current (VCE = 30 Vdc, VEB = 3.0Vdc)	IBL	-	-	50	nA

ON CHARACTERISTICS (Note 2.)

DC Current Gain (IC = 0.1 mAdc, VCE = 10 Vdc) (IC = 1.0 mAdc, VCE = 1.0 Vdc) (IC = 10 mAdc, VCE = 1.0 Vdc) (IC = 50 mAdc, VCE = 1.0 Vdc) (IC = 100 mAdc, VCE = 1.0 Vdc)	HFE	40 70 100 60 30	- - - - -	- - 300 - -	
Collector–Emitter Saturation Voltage (IC = 10 mAdc, IB = 1.0 mAdc) (IC = 50 mAdc, IB = 5.0 mAdc)	VCE(sat)	- -	- -	0.2 0.3	V
Base–Emitter Saturation Voltage (IC = 10 mAdc, IB = 1.0 mAdc) (IC = 50 mAdc, IB = 5.0 mAdc)	VBE(sat)	0.65 -	- -	0.85 0.95	V

SMALL–SIGNAL CHARACTERISTICS

Current–Gain — Bandwidth Product (IC = 10mAdc, VCE= 20Vdc, f = 100MHz)	fT	300	-	-	MHz
Output Capacitance (VCB = 5.0 Vdc, IE = 0, f = 1.0 MHz)	Cobo	-	-	4	pF
Input Capacitance (VEB = 0.5 Vdc, IC = 0, f = 1.0 MHz)	Cibo	-	-	8	pF

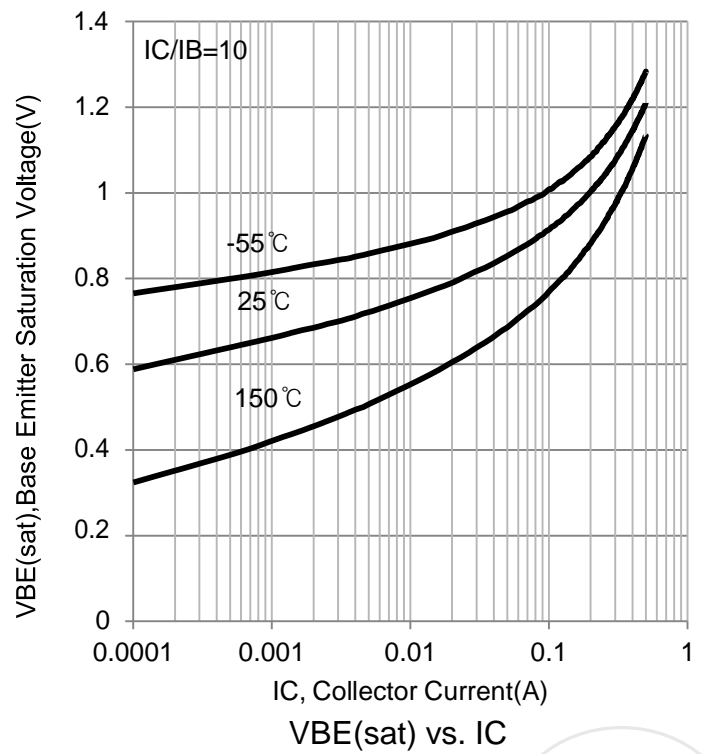
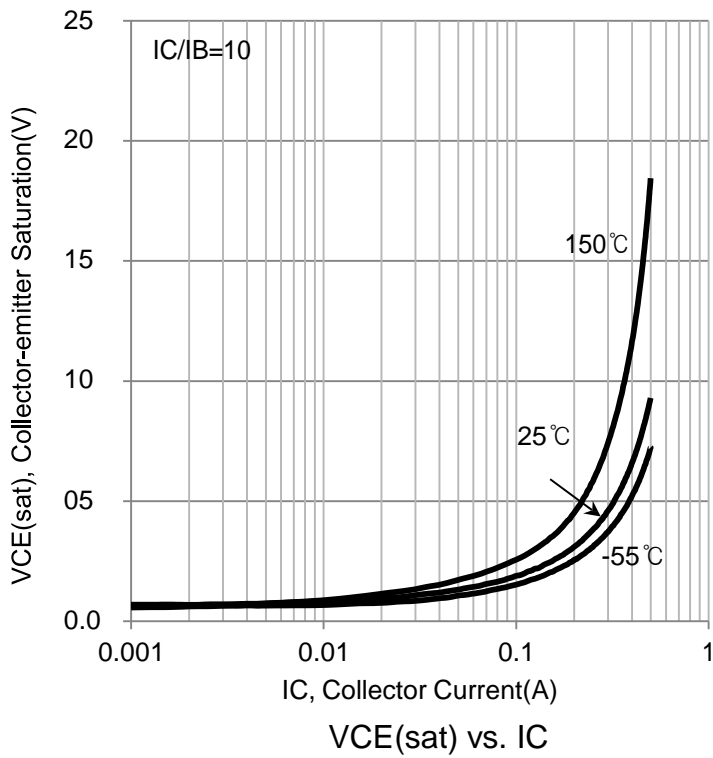
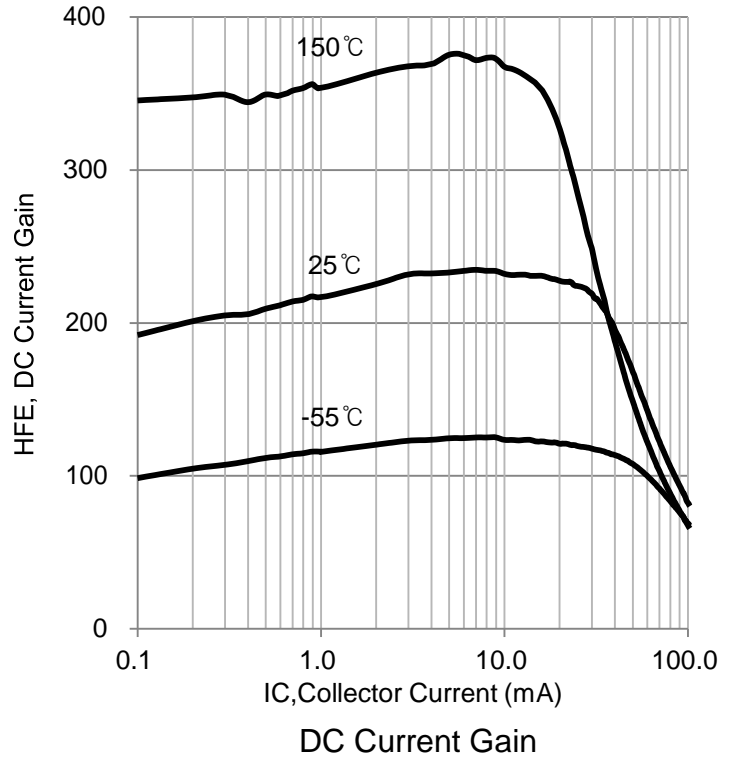
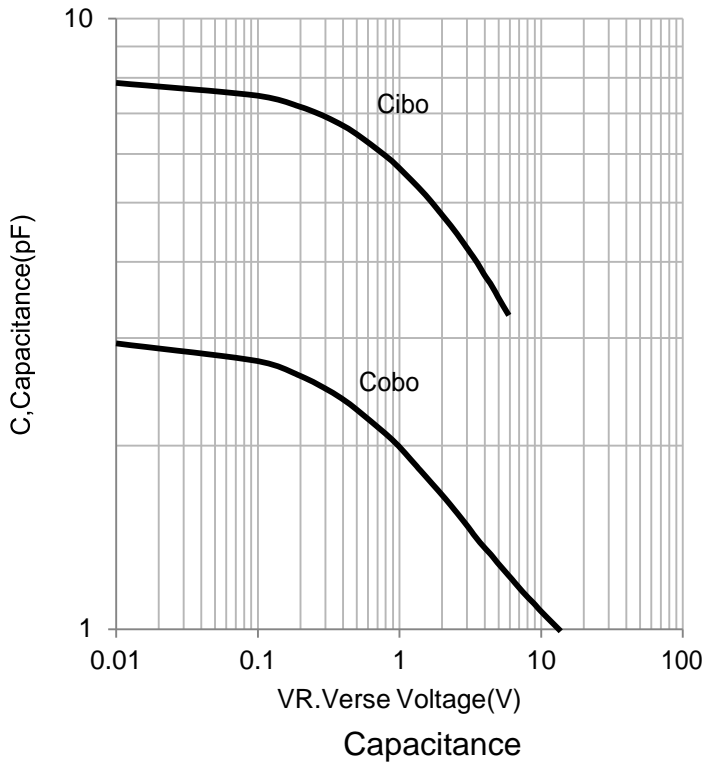
SWITCHING CHARACTERISTICS

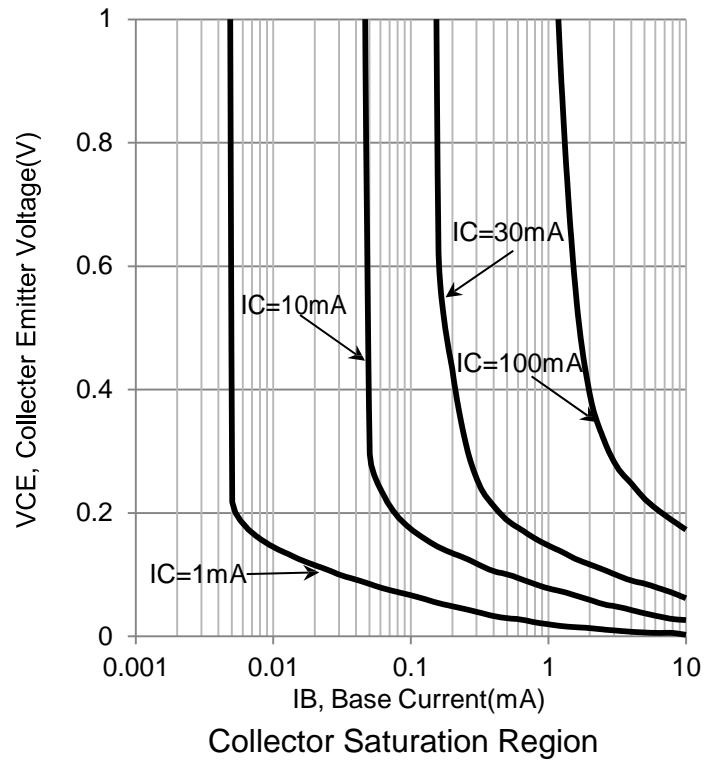
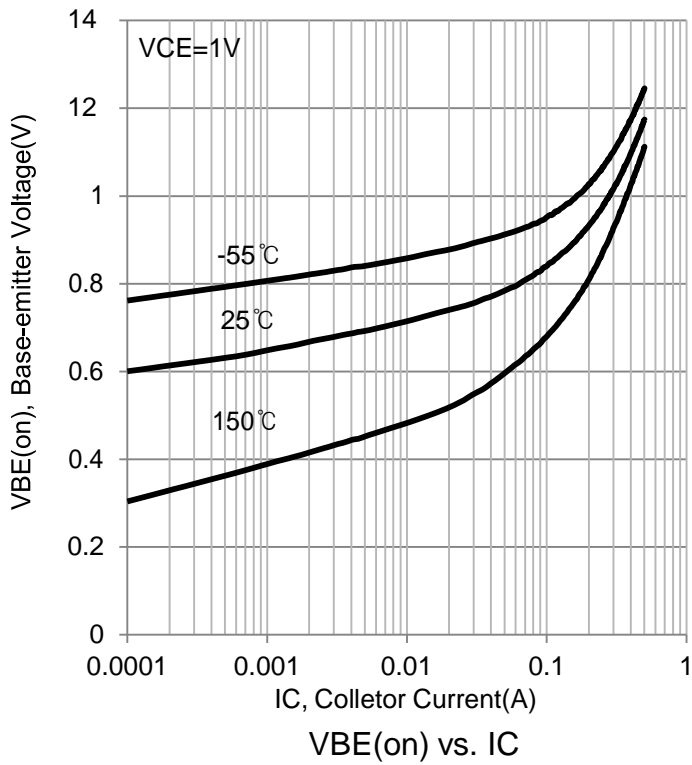
Delay Time	(VCC = 3.0 Vdc, VBE=-0.5Vdc, IC = 10mAdc, IB1 = 1.0 mAdc)	td	-	-	35	ns
Rise Time		tr	-	-	35	
Storage Time		ts	-	-	200	
Fall Time		tf	-	-	50	

2.Pulse Test: Pulse Width ≤300 µs, Duty Cycle ≤2.0%.

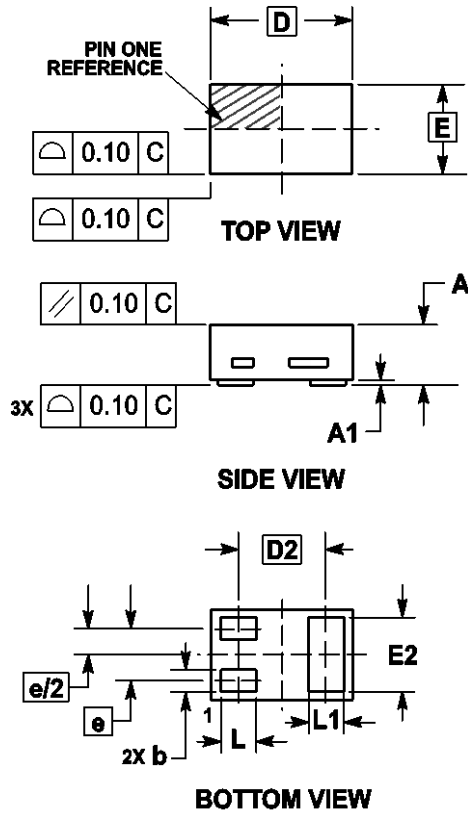


6. ELECTRICAL CHARACTERISTICS CURVES





7.OUTLINE AND DIMENSIONS

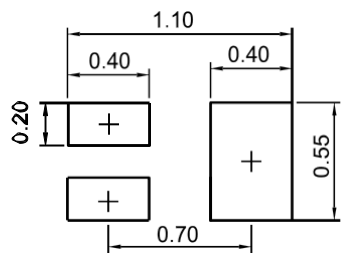


Notes:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.43	0.48	0.53	0.017	0.019	0.021
A1	0.00	---	0.05	0.000	---	0.002
b	0.10	0.15	0.2	0.004	0.006	0.008
D	0.95	1	1.05	0.037	0.039	0.041
D2	0.64REF			0.025REF		
e	0.34REF			0.013REF		
E	0.50	0.6	0.65	0.020	0.024	0.026
E2	0.44	0.49	0.54	0.017	0.019	0.021
L	0.19	0.24	0.29	0.007	0.009	0.011
L1	0.22	0.27	0.32	0.009	0.011	0.013

8.SOLDERING FOOTPRINT



DIMENSIONS: MILLIMETERS

