

Approved by:
Checked by:
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SPECIFICATION

PRODUCT: NPN 8GHz wideband transistor

MODEL: MAE183TRW SOT343R

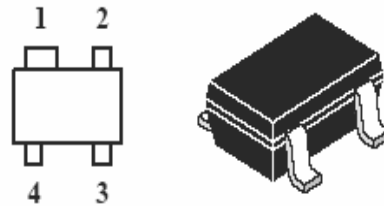
HOPE MICROELECTRONICS CO.,LIMITED

MAE183TRW

This item can replace **BFP183TRW**

FEATURES

- For low noise,
- high-gain broadband amplifiers at collector currents
- High transition frequency $f_T = 8$ GHz
- Gold metallization ensures excellent reliability
- SOT-343R package



Plastic case (SOT 343R)

1 = Collector, 2 = Emitter, 3 = Base, 4 = Emitter

APPLICATION

For low noise and high gain broadband amplifiers at collector currents from 2 mA to 30 mA.

Absolute Maximum Ratings

$T_{amb} = 25^\circ\text{C}$, unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	-	-	15	V
V_{CEO}	collector-emitter voltage	open base	-	-	10	V
V_{EBO}	Emitter-base voltage				2	V
I_C	collector current (DC)		-	-	65	mA
P_{tot}	total power dissipation	up to $T_s=60^\circ\text{C}$; note 1	-	-	200	mW

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	THERMAL RESISTANCE
$R_{Th\ j-s}$	on glass fibre printed board (25 x 20 x 1.5) mm3plated with 35um Cu	up to $T_s = 60^\circ\text{C}$;note 1	450 K/W

Electrical DC Characteristics

$T_{amb} = 25^\circ\text{C}$, unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector-base voltage	$V_{CB}=10\text{V}, I_E=0$	-	-	100	nA
V_{CEO}	collector-emitter voltage	$I_C = 1\text{ mA}, I_B = 0$	-	-	10	V
I_{EBO}	emitter-base voltage	$V_{EB} = 1\text{ V}, I_C = 0$	-	-	1	μA
I_{CES}	Collector cut-off current	$V_{CE} = 15\text{ V}, V_{BE} = 0$	-	-	100	μA
$V_{(BR)CEO}$	collector current (DC)	$I_C = 1\text{ mA}, I_B = 0$	-	10	-	V
V_{CEsat}	Collector-emitter saturation voltage	$I_C = 30\text{ mA}, I_B = 3\text{ mA}$	-	0.1	0.4	V
h_{FE}	DC forward current transfer ratio	$V_{CE} = 6\text{ V}, I_C = 5\text{ mA}$	50	90	150	
		$V_{CE} = 8\text{ V}, I_C = 20\text{ mA}$	50	110	-	

Electrical AC Characteristics

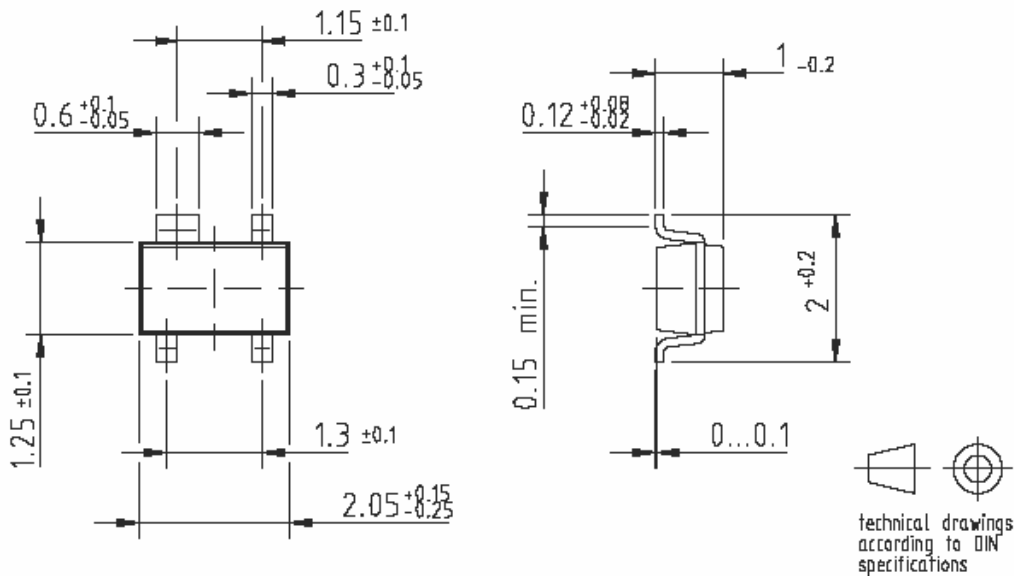
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T_j=25°C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
f _T	transition frequency	IC = 15mA; VCE = 8 V; f = 500MHz; Tamb=25C	6	7.2	-	GHz
		IC = 30mA; VCE = 8 V; f = 500MHz; Tamb=25C	-	8	-	GHz
C _{Cb}	Collector-base capacitance	V _{CB} = 10 V, f = 1 MHz	-	0.4	-	pF
C _{Ce}	Collector – emitter capacitance	V _{CE} = 8 V, f = 1 MH	-	0.3	-	pF
C _{eb}	Emitter-base capacitance	V _{EB} = 0.5 V, f = 1 MHz	-	0.9	-	pF
G _{UM}	maximum unilateral power gain	V _{CE} = 8 V, IC = 15 mA, Z _S = Z _{Sopt} , Z _L = Z _{Lopt} , f = 900 MHz	-	21	-	dB
		V _{CE} = 8 V, IC = 15 mA, Z _S = 50 Ω, Z _L = Z _{Lopt} , f = 2 GH	-	12.5	-	dB
F	noise figure	V _{CE} = 6 V, IC = 5 mA, Z _S = 75 Ω, f = 10 MHz	-	0.9	1.6	dB
		V _{CE} = 6 V, IC = 5 mA, Z _S = Z _{Sopt} , f = 900 MHz	-	1.2	-	dB
		V _{CE} = 6 V, IC = 5 mA, Z _S = Z _{Sopt} , f = 2 GHz	--	1.8	-	dB
S _{21e} ²	Transducer gain	V _{CE} = 8 V, IC = 15 mA, Z ₀ = 50 Ω, f = 900 MHz	-	16.5	-	dB



Notice:

Thank you very much for your favors and patronage to our semiconductor products. We are making an effort to eliminate lead (Pb) compound by considering its influence on our environment, and plan to implement lead free terminal (complete exclusion of Pb) for our discrete semiconductor products.

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