T-33-05
T-33-07
T-33-09

NEC®

2.3 GHz POWER OSCILLATOR TRANSISTOR | NEX2300 SERIES

FEATURES

- **HIGH POWER:** 3.2 W AT 2.3 GHz
- **HIGH EFFICIENCY:** 30%
- **LOW AM & FM NOISE**
- **HIGH RELIABILITY**
- **COMMON COLLECTOR**

DESCRIPTION AND APPLICATIONS

The NEX2300 series is an NPN transistor using NEC's advanced Stepped Electrode Transistor (SET) structure with emitter ballasting resistors. The Pt-Si/Ti/Pt/Au metallization system assures optimum reliability. The series is provided in grounded collector hermetic packages ideal for power oscillator applications in L thru S-bands.

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PERFORMANCE SPECIFICATIONS (T_A = 25°C)

PART NUMBER PACKAGE OUTLINE			NEX2301 64, 65, 87	NEX2302 64, 65	NEX2303 64, 65
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	TYP	TYP	TYP
P_{OSC}	Oscillator Power Output at V_{CE} = 18 V, f = 2.3 GHz I_E = 250 mA I_E = 350 mA I_E = 600 mA	 W W W	 1.6	 2	 3.2

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

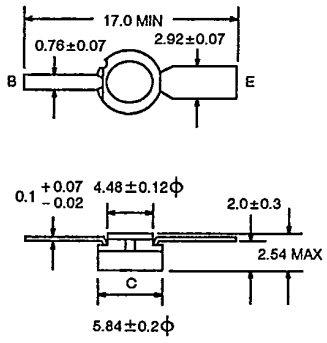
PART NUMBER PACKAGE OUTLINE			NEX2301 87			NEX2301 64, 65			NEX2302 64, 65			NEX2303 64, 65		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX	MIN	TYP	MAX
I_{CBO}	Collector Cutoff Current at V_{CB} = 30 V, I_E = 0	mA			0.25			0.25			0.5			1
I_{EBO}	Emitter Cutoff Current at V_{EB} = 2 V, I_C = 0	mA			0.25			0.25			0.5			1
h_{FE}	Forward Current Gain at V_{CE} = 5 V, I_C = 100 mA I_C = 200 mA I_C = 400 mA		15	40	120	15	40	120	15	40	120	15	40	120
C_{OB}	Output Capacitance at V_{CB} = 20 V, I_E = 0	pF		1.5	2.5		2.5	4		3.7	5		6.2	8
R_{TH}	Thermal Resistance (Junction-to-Case)	°C/W			25			16			10			6
P_T	Total Power Dissipation	W			7			11			17.5			29

ABSOLUTE MAXIMUM RATINGS (TA = 25°C)

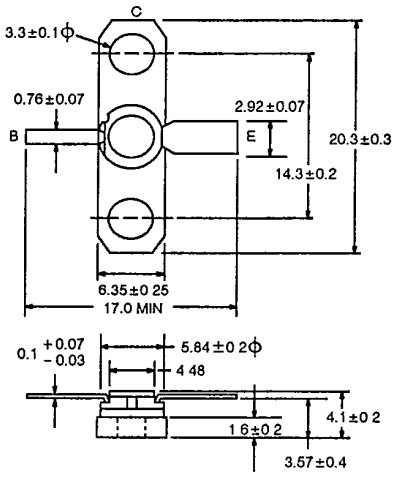
PART NUMBER / PACKAGE OUTLINE			NEX2301 64, 65, 87	NEX2302 64, 65	NEX2303 64, 65
SYMBOLS	CHARACTERISTICS	UNITS	RATINGS	RATINGS	RATINGS
V_{CBO}	Collector to Base Voltage	V	45	45	45
V_{CEO}	Collector to Emitter Voltage	V	20	20	20
V_{EBO}	Emitter to Base Voltage	V	3	3	3
I_C	Collector Current	A	0.6	1.1	2
T_J	Junction Temperature	°C	200	200	200
T_{STG}	Storage Temperature	°C	-65 to +200	-65 to +200	-65 to +200

OUTLINE DIMENSIONS (Units in mm)

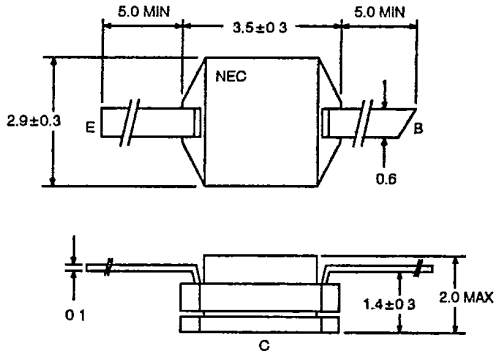
OUTLINE 64



OUTLINE 65

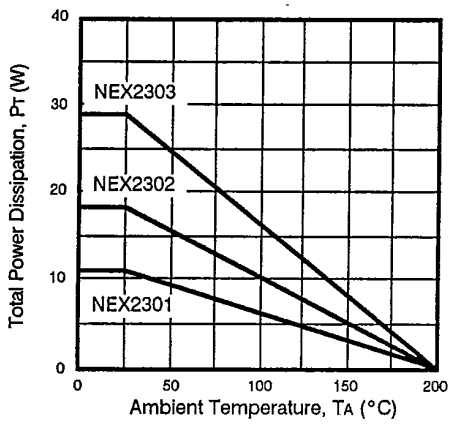


OUTLINE 87

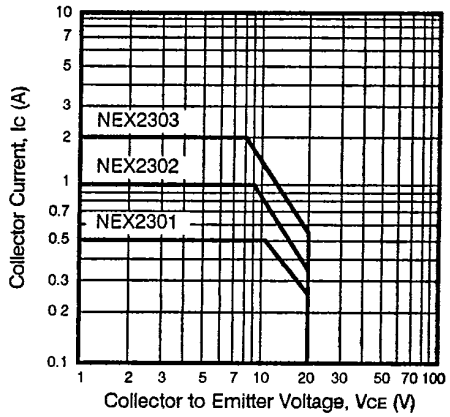


TYPICAL DEVICE CHARACTERISTICS (TA= 25 °C)

POWER DERATING CURVE

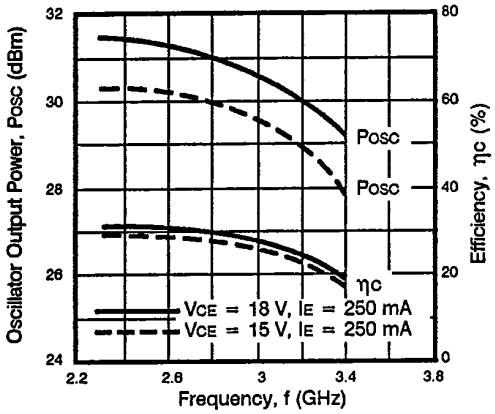


DC SAFE OPERATING REGION

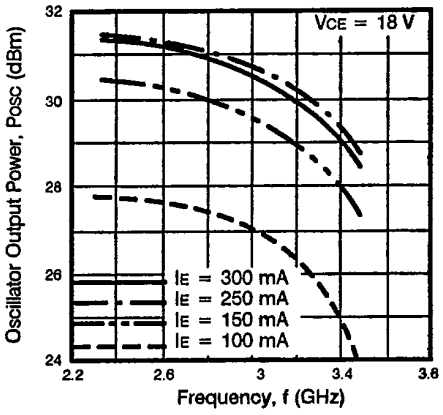


TYPICAL PERFORMANCE CHARACTERISTICS (T_A = 25°C)

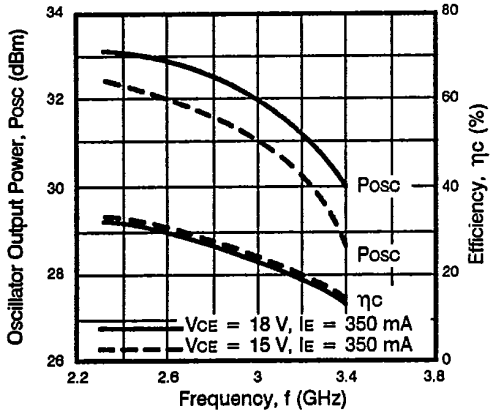
NEX230187
OSCILLATOR OUTPUT POWER AND EFFICIENCY vs. FREQUENCY AND V_{CE}



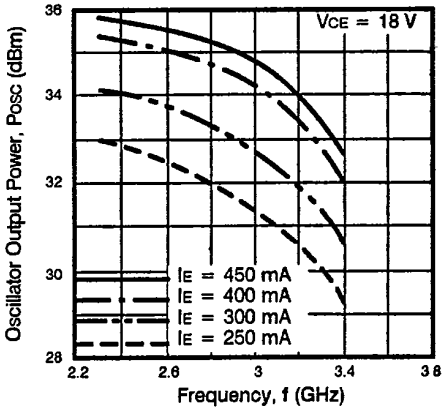
NEX230187
OSCILLATOR OUTPUT POWER vs. FREQUENCY AND EMITTER CURRENT



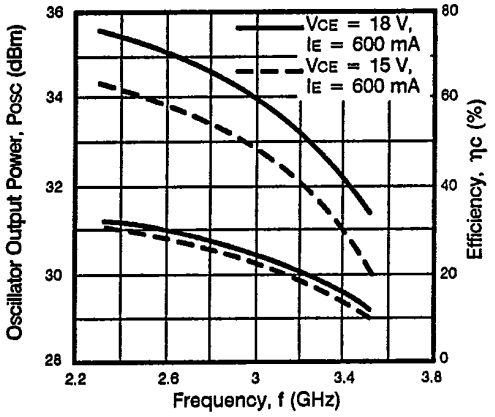
NEX230265
OSCILLATOR OUTPUT POWER AND EFFICIENCY vs. FREQUENCY AND V_{CE}



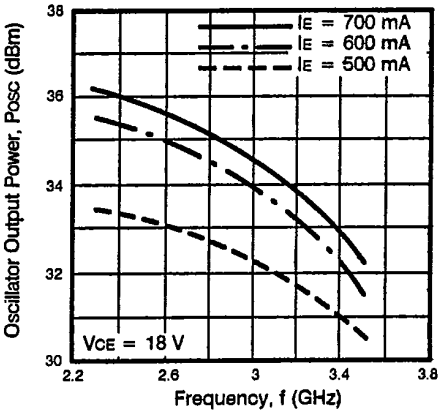
NEX230265
OSCILLATOR OUTPUT POWER vs. FREQUENCY AND EMITTER CURRENT



NEX230365
OSCILLATOR OUTPUT POWER AND EFFICIENCY vs. FREQUENCY AND V_{CE}



NEX230365
OSCILLATOR OUTPUT POWER vs. FREQUENCY AND EMITTER CURRENT



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