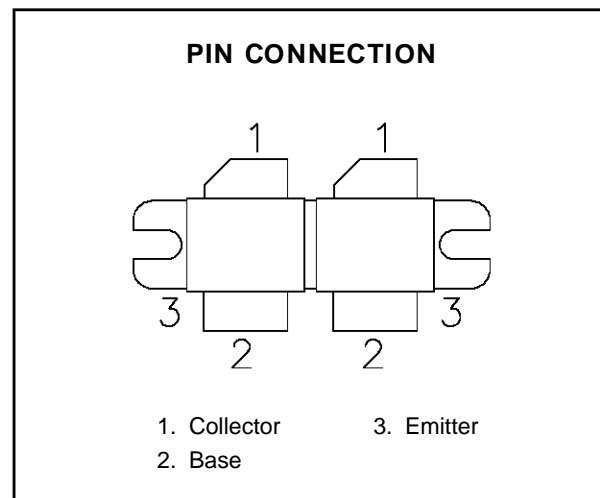
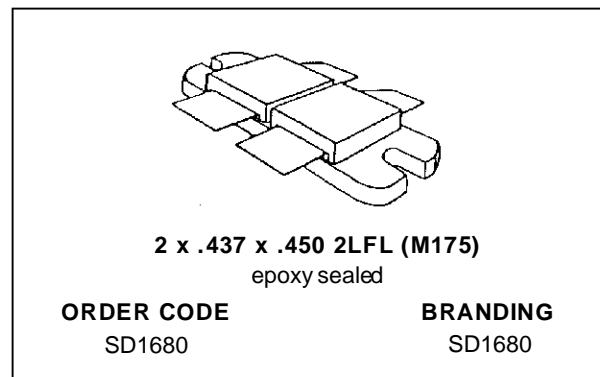


**RF & MICROWAVE TRANSISTORS
800/900 MHz APPLICATIONS**

- 915 - 960 MHz
- 24 VOLTS
- CLASS AB PUSH PULL
- INTERNAL INPUT MATCHING
- DESIGNED FOR HIGH POWER LINEAR OPERATION
- HIGH SATURATED POWER CAPABILITY
- GOLD METALLIZATION FOR HIGH RELIABILITY
- DIFFUSED EMITTER BALLAST RESISTORS
- COMMON EMITTER CONFIGURATION
- $P_{OUT} = 100 \text{ W MIN. WITH } 7.0 \text{ dB GAIN}$


DESCRIPTION

The SD1680 is a gold metallized epitaxial silicon NPN planar transistor using diffused emitter ballast resistors for high linearity Class AB operation in cellular base station applications.

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}\text{C}$)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	30	V
V_{EBO}	Emitter-Base Voltage	3.0	V
I_C	Device Current	25	A
P_{DISS}	Power Dissipation	310	W
T_J	Junction Temperature	+200	$^{\circ}\text{C}$
T_{STG}	Storage Temperature	- 55 to +150	$^{\circ}\text{C}$

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	0.55	$^{\circ}\text{C/W}$
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SD1680

ELECTRICAL SPECIFICATIONS (T_{case} = 25°C)

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV _{CBO}	I _C = 100mA	I _E = 0mA	60	—	—	V
BV _{CEO}	I _C = 100mA	I _B = 0mA	30	—	—	V
BV _{EBO}	I _E = 50mA	I _C = 0mA	3.0	—	—	V
I _{CES}	V _{CE} = 28V	I _E = 0mA	—	—	10	mA
h _{FE}	V _{CE} = 5V	I _C = 3A	15	—	70	—

Tested Per Side

DYNAMIC

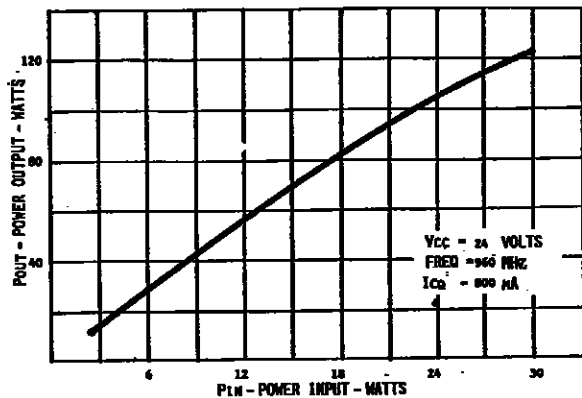
Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P _{OUT} *	f = 900 MHz	V _{CE} = 24 V	I _{CQ} = 2 x 300 mA	120	—	—	W
G _P *	f = 900 MHz	V _{CE} = 24 V	I _{CQ} = 2 x 300 mA	7.0	—	—	dB
IMD**	f = 900 MHz	V _{CE} = 24 V	I _{CQ} = 2 x 300 mA	—	-32	—	dBc
η _C	f = 900 MHz	V _{CE} = 24 V	I _{CQ} = 2 x 300 mA	45	—	—	%
C _{OB}	f = 1 MHz	V _{CB} = 28 V		—	—	100	pF

Note: * @ 1 dB Compression

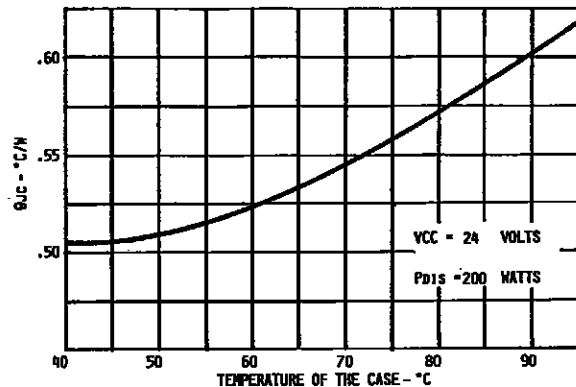
** P_{OUT} = 100W PEP, ΔF = 400KHz (2 tones)

TYPICAL PERFORMANCE

POWER OUTPUT vs POWER INPUT

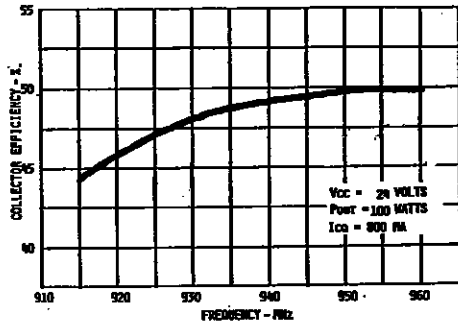


THERMAL RESISTANCE vs CASE TEMPERATURE

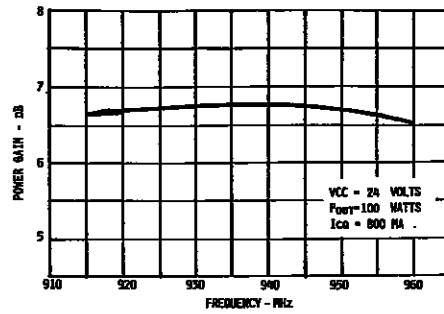


TYPICAL PERFORMANCE (cont'd)

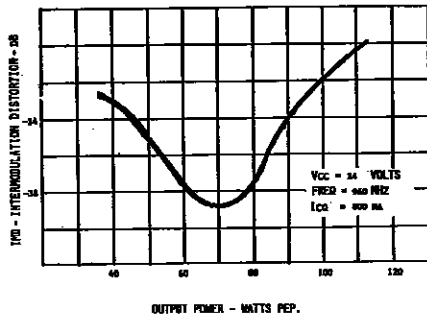
COLLECTOR EFFICIENCY vs FREQUENCY



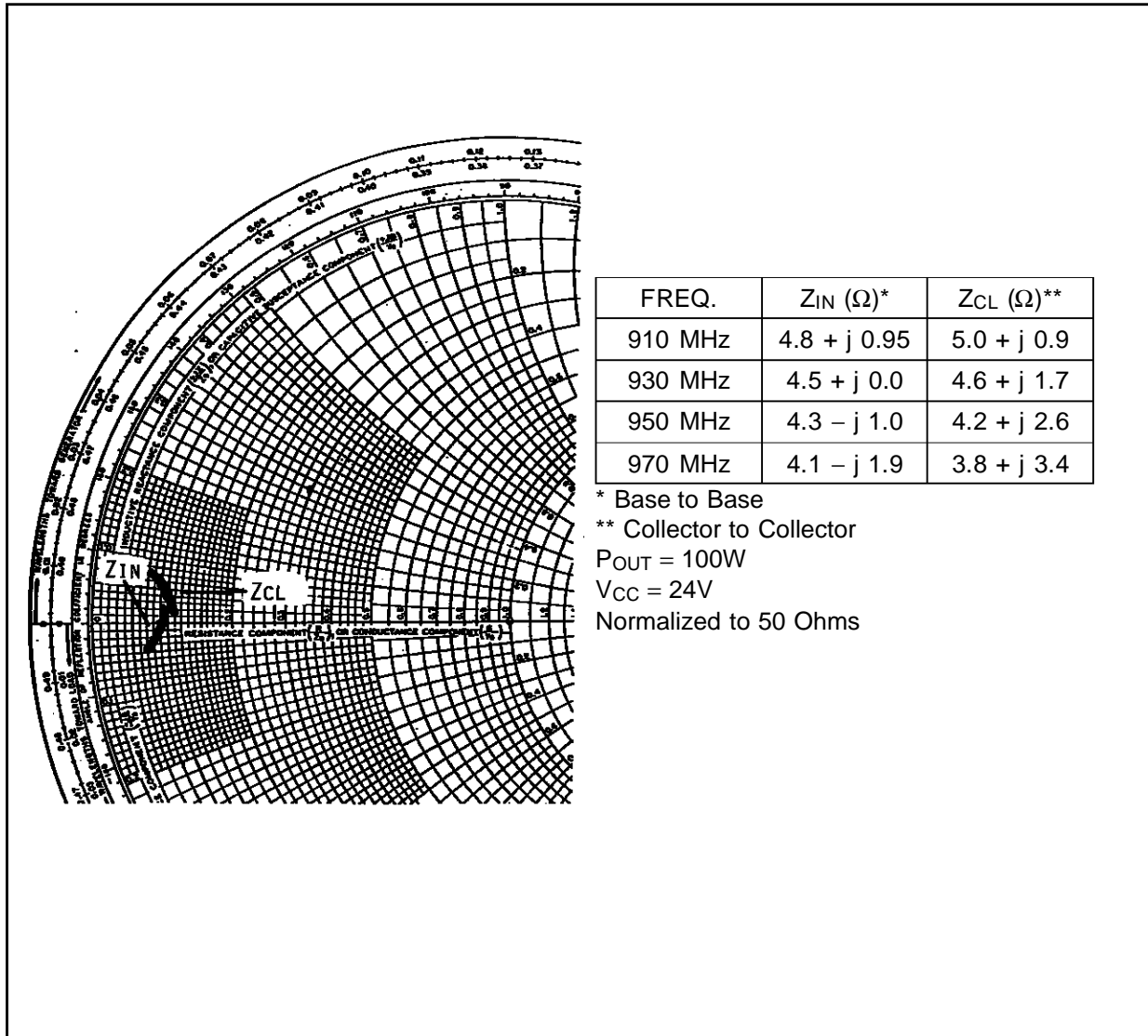
BROADBAND POWER GAIN vs FREQUENCY



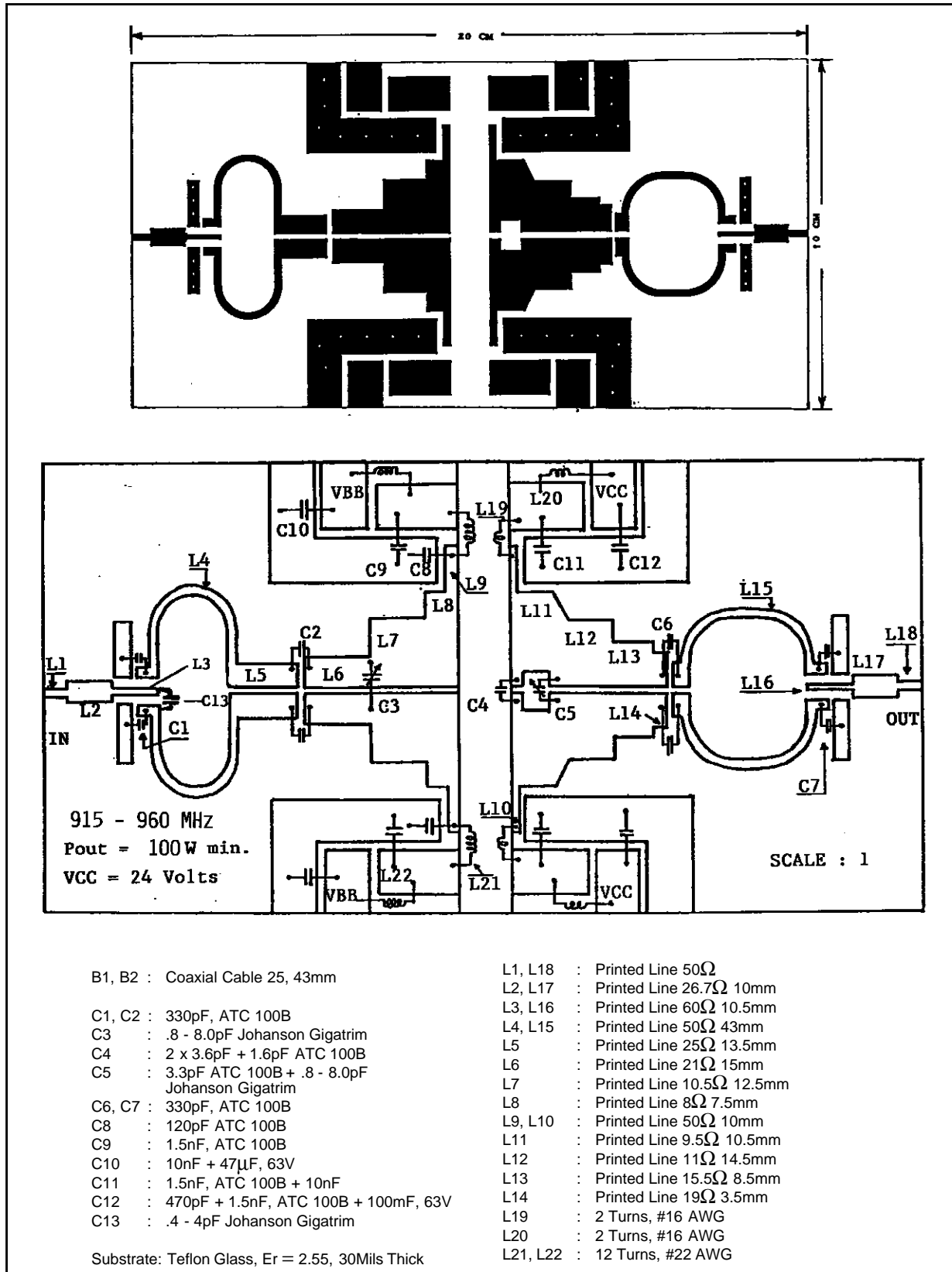
INTERMODULATION DISTORTION vs POWER OUTPUT



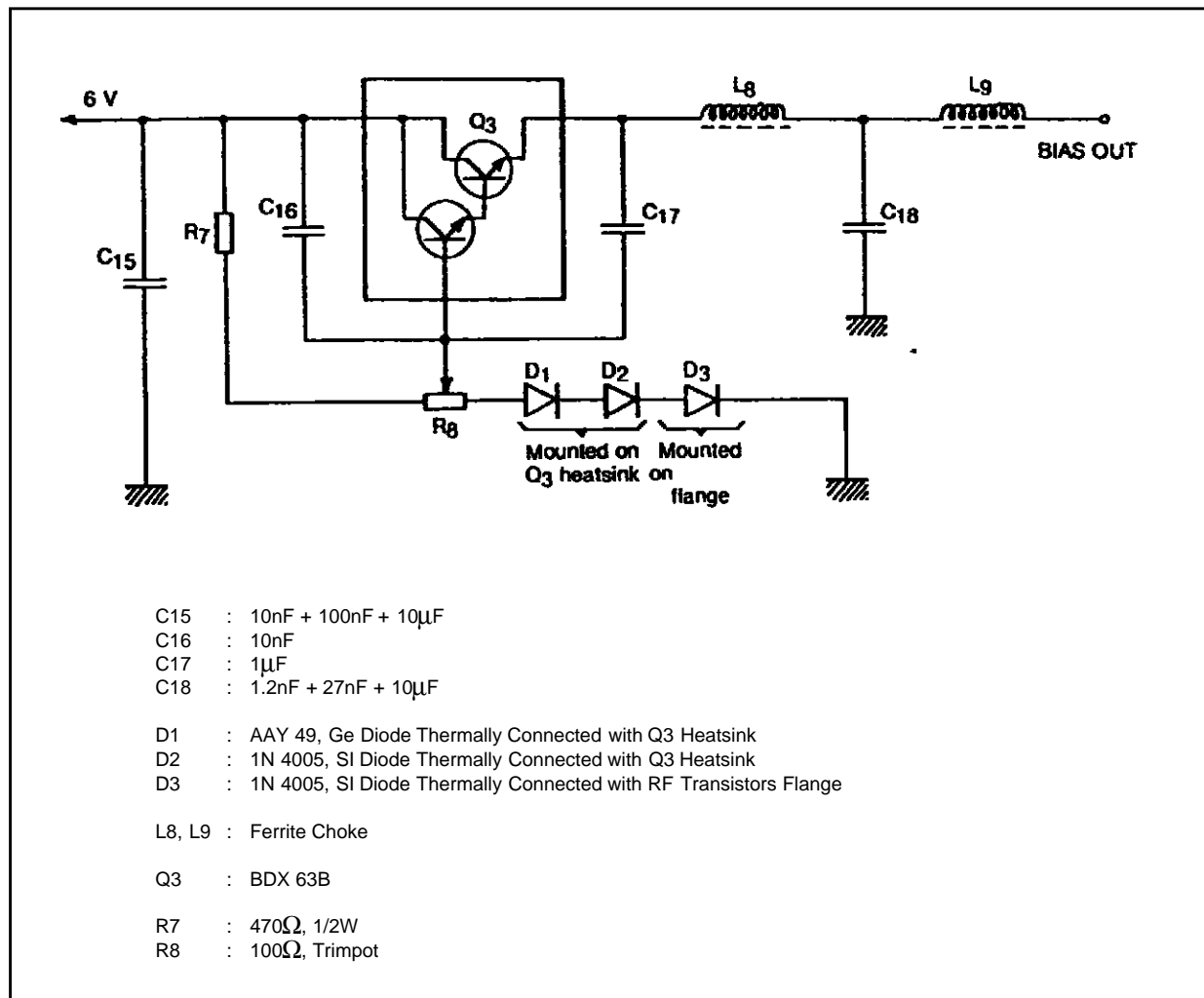
IMPEDANCE DATA



TEST CIRCUIT

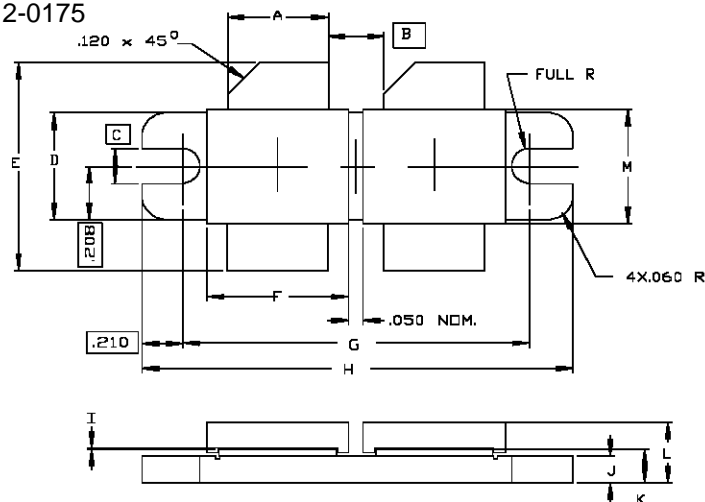


BIAS VOLTAGE SOURCE



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0175



SGS-THOMSON MICROELECTRONICS		CONT'D			
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.373/9,47	.385/9,78	K	.115/2,92	.135/3,43
B	.190/4,83		L		250/6,35
C	.130/3,30		M	.445/11,30	.455/11,56
D	.411/10,44	.421/10,69			
E	.825/20,96	.865/21,97			
F	.525/13,34	.535/13,59			
G	1.255/31,88	1.265/32,13			
H	1.675/42,55	1.685/42,80			
I	.002/0,05	.006/0,15			
J	.095/2,41	.105/2,67			

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