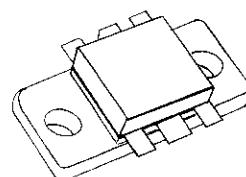


RF & MICROWAVE TRANSISTORS CELLULAR BASE STATION APPLICATIONS

- DESIGNED FOR CLASS AB LINEAR OPERATION
- COMMON EMITTER
- INTERNAL INPUT/OUTPUT MATCHING
- 26 VOLT, 960 MHz PERFORMANCE:
 - $P_{OUT} = 45 \text{ W MIN.}$
 - $GAIN = 8.5 \text{ dB MIN.}$
 - COLLECTOR EFFICIENCY 50% MIN.
- INHERENT RUGGEDNESS:
 - LOAD MISMATCH TOLERANCE OF 5:1 MIN. VSWR
 - 3 dB OVERDRIVE CAPABILITY



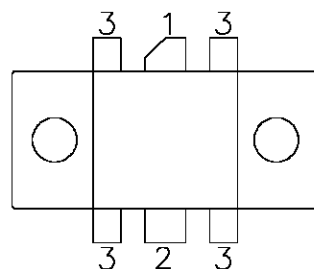
.400 x .425 6LFL (M169)
epoxy sealed

ORDER CODE
SD4701

BRANDING
SD4701

DESCRIPTION

PIN CONNECTION



1. Collector 3. Emitter
2. Base

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_{CER}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	3.5	V
I_C	Device Current	10	A
P_{DISS}	Power Dissipation	145	W
T_J	Junction Temperature	+200	$^{\circ}\text{C}$
T_{STG}	Storage Temperature	- 65 to +150	$^{\circ}\text{C}$

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	1.2	$^{\circ}\text{C/W}$
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SD4701

ELECTRICAL SPECIFICATIONS ($T_{\text{case}} = 25^{\circ}\text{C}$)

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_{\text{C}} = 60 \text{ mA}$	$I_{\text{E}} = 0 \text{ mA}$	60	—	—	V
BV_{CEO}	$I_{\text{C}} = 60 \text{ mA}$	$I_{\text{B}} = 0 \text{ mA}$	30	—	—	V
BV_{CER}	$I_{\text{C}} = 60 \text{ mA}$	$R_{\text{BE}} = 75 \Omega$	40	—	—	V
BV_{EBO}	$I_{\text{E}} = 10 \text{ mA}$	$I_{\text{C}} = 0 \text{ mA}$	3.5	—	—	V
I_{CER}	$V_{\text{CE}} = 26 \text{ V}$	$R_{\text{BE}} = 75 \Omega$	—	—	15	mA
h_{FE}	$V_{\text{CE}} = 10 \text{ V}$	$I_{\text{C}} = 1 \text{ A}$	15	—	100	—

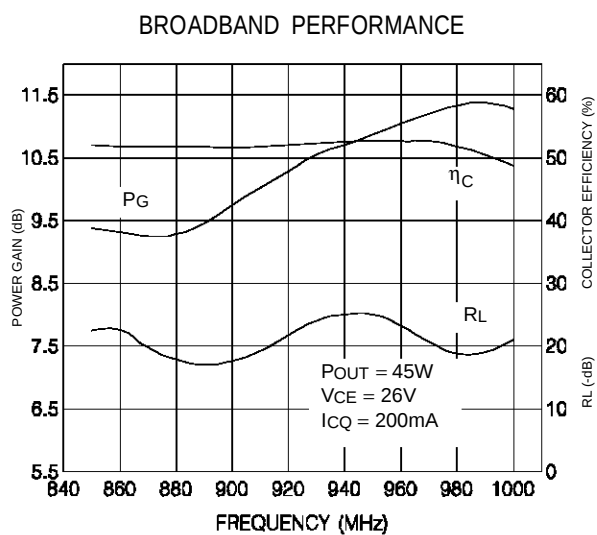
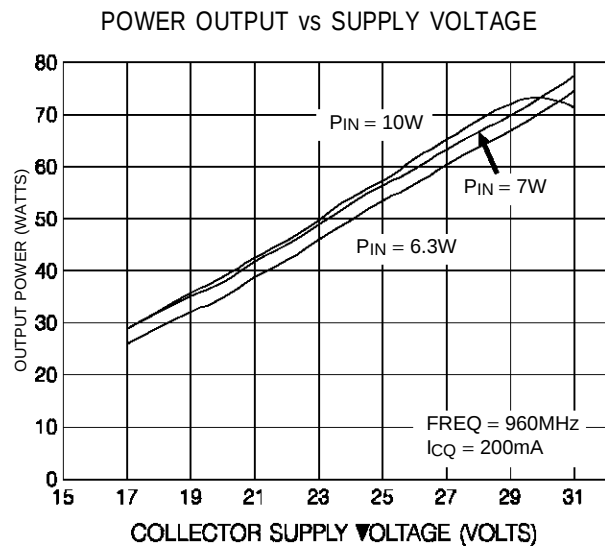
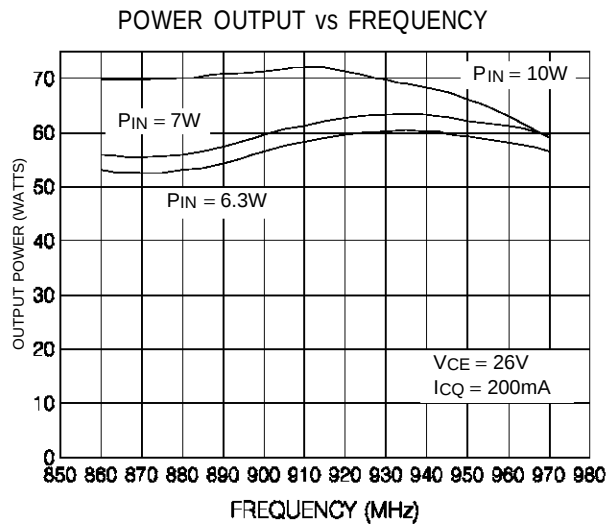
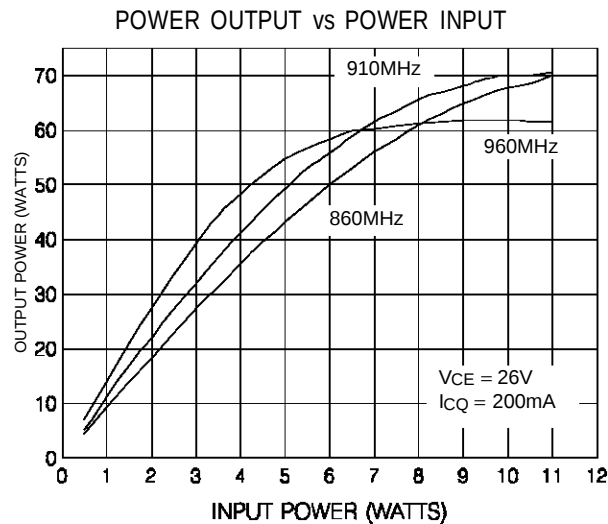
DYNAMIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
C_{OB}	$f = 1 \text{ MHz}$ $V_{\text{CB}} = 26 \text{ V}$ For Information Only - This Device is Collector Matched		—	55	—	pF
P_{IN}	$f = 960 \text{ MHz}$ $V_{\text{CE}} = 26 \text{ V}$ $I_{\text{CQ}} = 200 \text{ mA}$ $P_{\text{OUT}} = 45 \text{ W}$		—	5	6.3	W
P_{OUT}	$f = 960 \text{ MHz}$ $V_{\text{CE}} = 26 \text{ V}$ $I_{\text{CQ}} = 200 \text{ mA}$ $P_{\text{IN}} = 6.3 \text{ W}$		45	55	—	W
G_{P}	$f = 960 \text{ MHz}$ $V_{\text{CE}} = 26 \text{ V}$ $I_{\text{CQ}} = 200 \text{ mA}$ $P_{\text{OUT}} = 45 \text{ W}$		8.5	9.5	—	dB
η_{c}	$f = 960 \text{ MHz}$ $V_{\text{CE}} = 26 \text{ V}$ $I_{\text{CQ}} = 200 \text{ mA}$ $P_{\text{OUT}} = 45 \text{ W}$		50	55	—	%
Load Mismatch	$f = 960 \text{ MHz}$ $V_{\text{CE}} = 26 \text{ V}$ $I_{\text{CQ}} = 200 \text{ mA}$ $P_{\text{OUT}} = 45 \text{ W}$ VSWR = 5:1 MIN. @ All Phase Angles		No Degradation in Device Performance			
OVD	$f = 960 \text{ MHz}$ $V_{\text{CE}} = 26 \text{ V}$ $I_{\text{CQ}} = 200 \text{ mA}$ Set $P_{\text{OUT}} = 45 \text{ W}$; Increase P_{IN} 3dB		No Degradation in Device Performance			
*IMD ₃	$V_{\text{CE}} = 26 \text{ V}$ $P_{\text{OUT}} = 46.5 \text{ dBm (45.0W) PEP}$ $I_{\text{CQ}} = 200 \text{ mA}$		—	−32	—	dB ^{BT} **

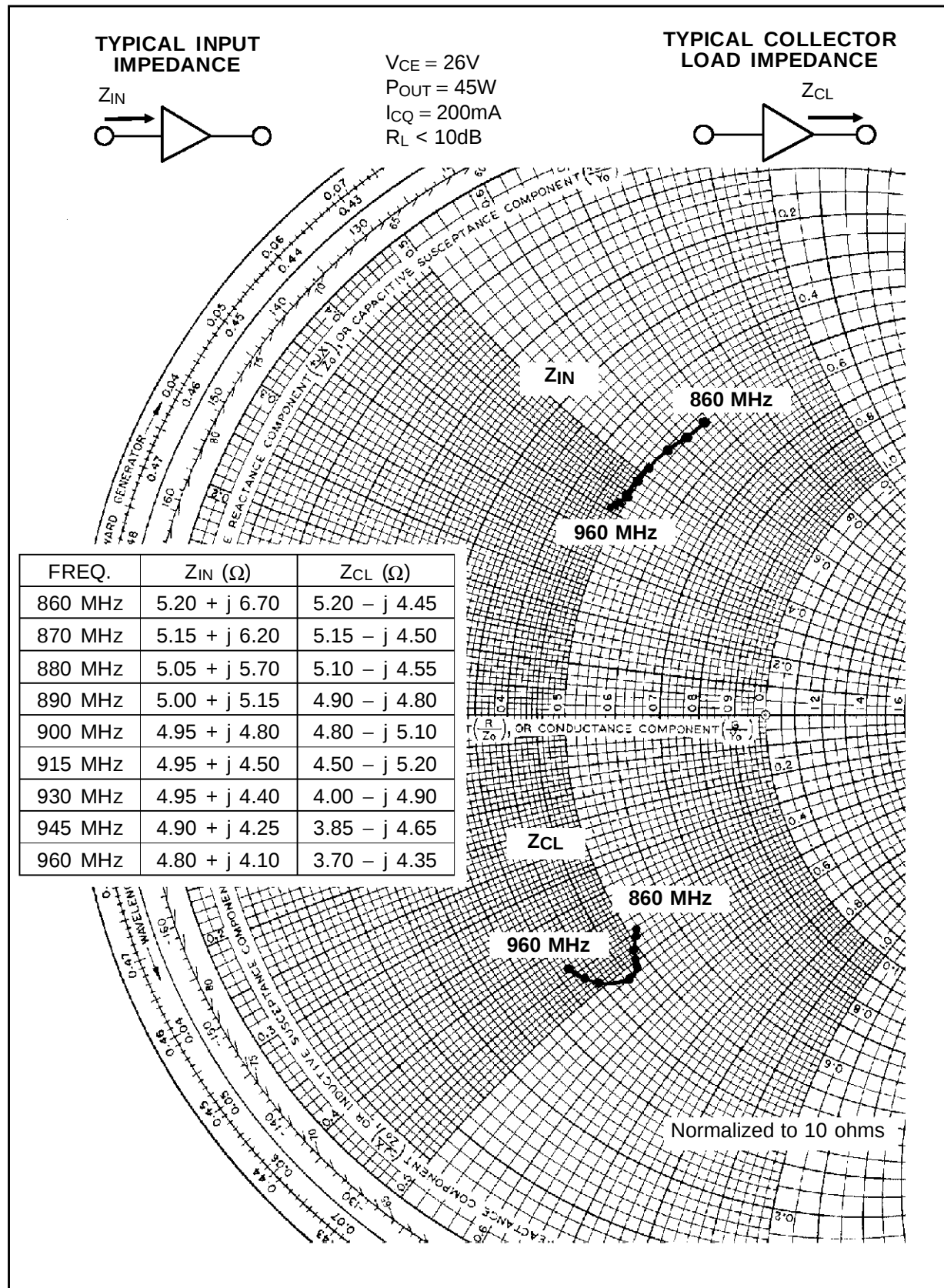
*Note: $f_1 = 900.00\text{MHz}$ @ 40.5dBm
 $f_2 = 900.01\text{MHz}$ @ 40.5dBm

** dBT, in dB, referenced to tone level

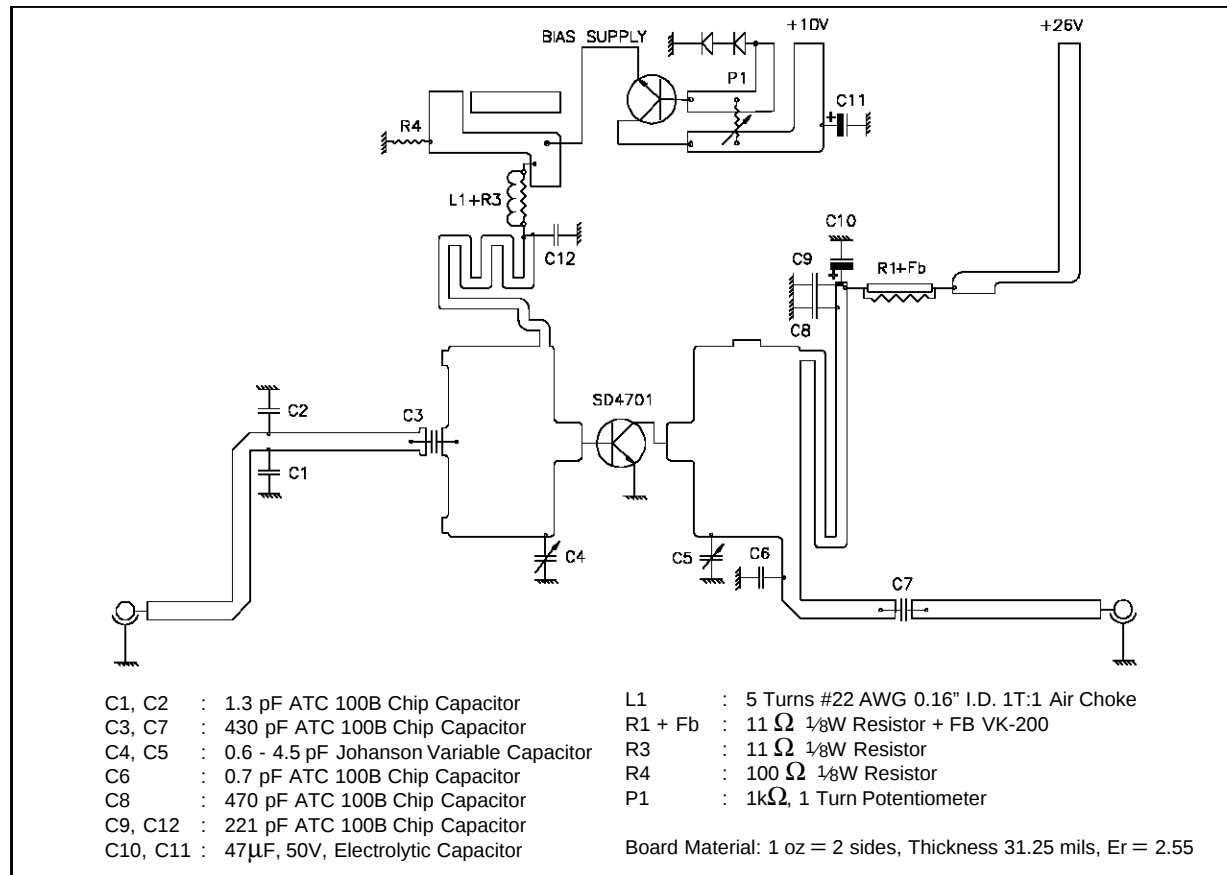
TYPICAL PERFORMANCE



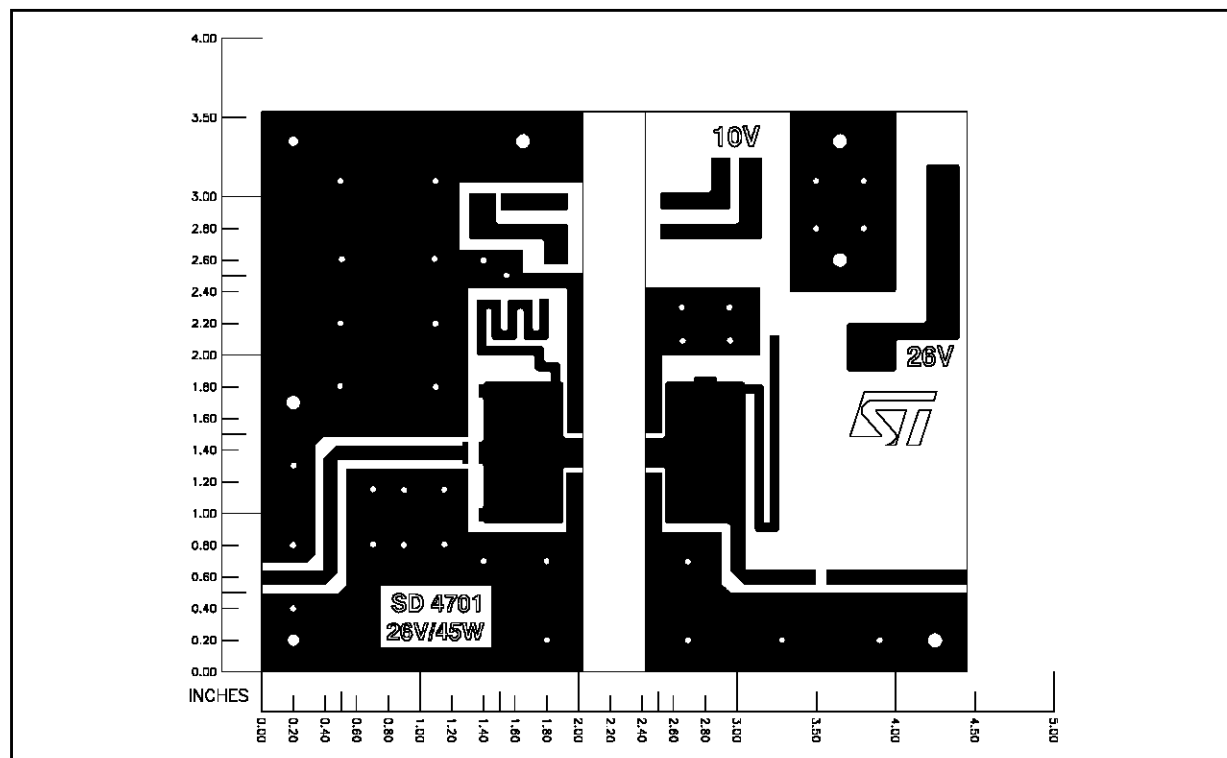
IMPEDANCE DATA



TEST CIRCUIT

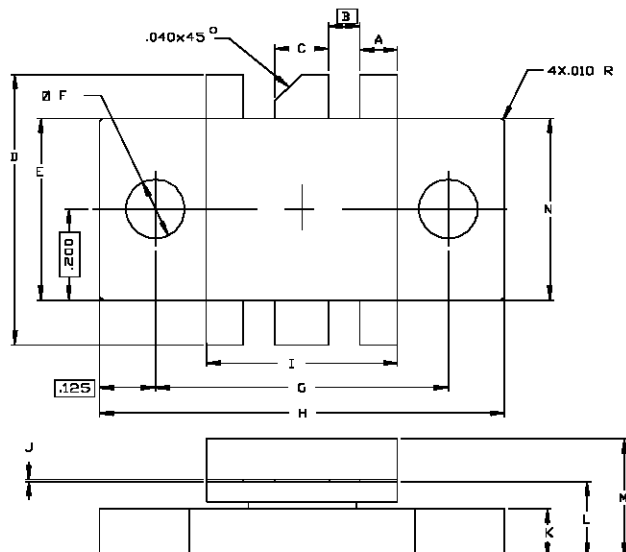


TEST CIRCUIT PHOTOMASTER



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0169



SGS-THOMSON MICROELECTRONICS			CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.078/1,98	.088/2,24	K	.105/2,67	.115/2,92
B	.120/3,05		L	.159/4,04	.175/4,43
C	.115/2,92	.125/3,18	M		.280/7,11
D	.580/14,73	.620/15,75	N	.395/10,03	.408/10,36
E	.395/10,03	.405/10,29			
F	.125/3,18				
G	.720/18,29	.730/18,54			
H	.970/24,64	.980/24,89			
I	.420/10,67	.430/10,92			
J	.002/0,05	.007/0,18			

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