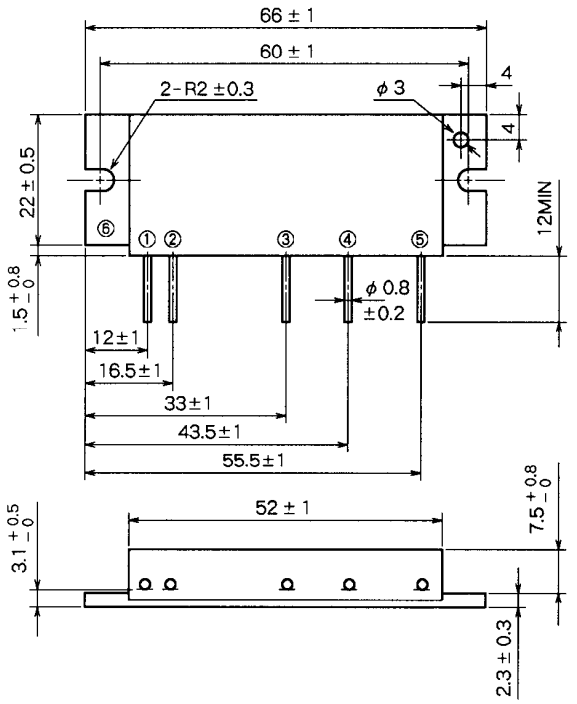
MITSUBISHI RF POWER MODULE

M57788UH

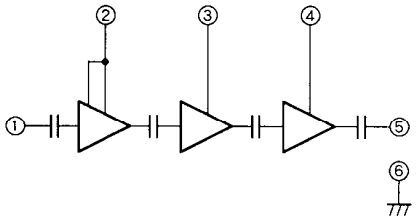
470-490MHz, 12.5V, 40W, FM MOBILE RADIO

OUTLINE DRAWING Dimensions in mm



H3

BLOCK DIAGRAM



PIN :
①Pin : RF INPUT
②Vcc1 : 1st. DC SUPPLY
③Vcc2 : 2nd. DC SUPPLY
④Vcc3 : 3rd. DC SUPPLY
⑤Po : RF OUTPUT
⑥GND : FIN

ABSOLUTE MAXIMUM RATINGS (Tc = 25℃ unless otherwise noted)

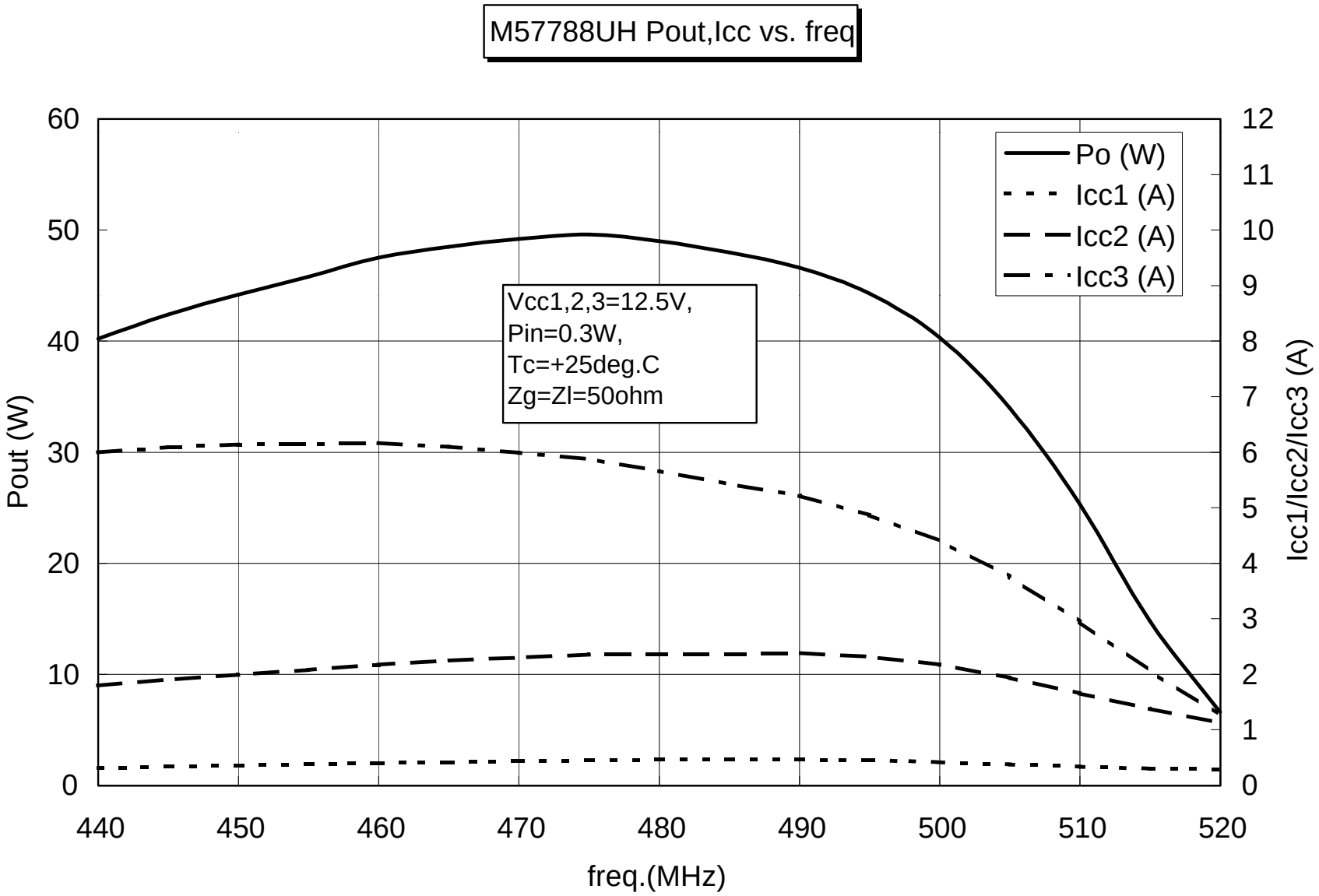
Symbol	Parameter	Conditions	Ratings	Unit
V_{CC1}	Supply voltage		16	V
$V_{CC2,3}$			17	V
I_{CC}	Total current		12	A
$P_{in(max)}$	Input power	$Z_G = Z_L = 50\ \Omega$	0.5	W
$P_{O(max)}$	Output power	$Z_G = Z_L = 50\ \Omega$	50	W
$T_{C(OP)}$	Operation case temperature		−30 to 110	℃
T_{stg}	Storage temperature		−40 to 110	℃

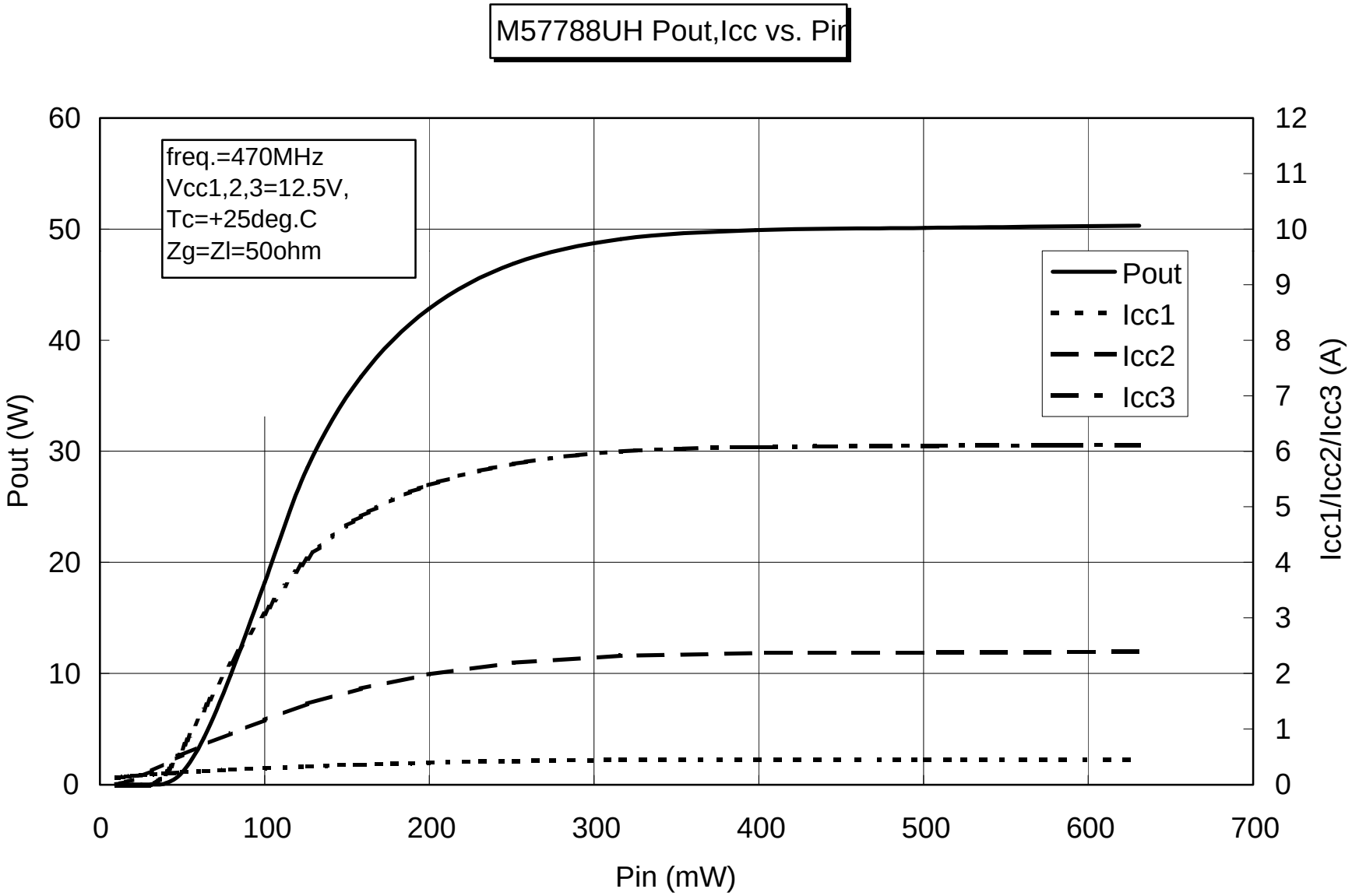
Note. Above parameters are guaranteed independently.

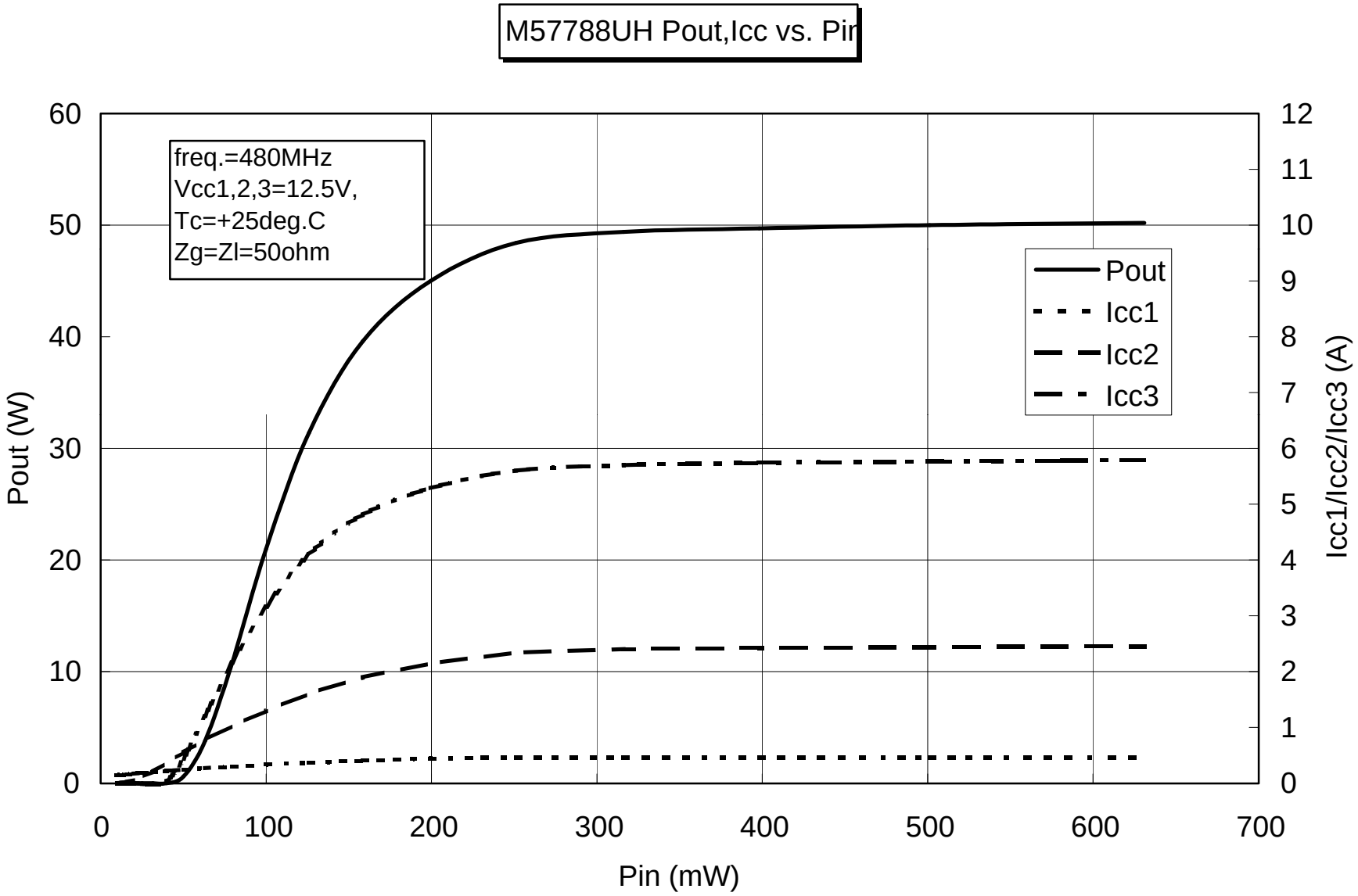
ELECTRICAL CHARACTERISTICS (Tc = 25℃ unless otherwise noted)

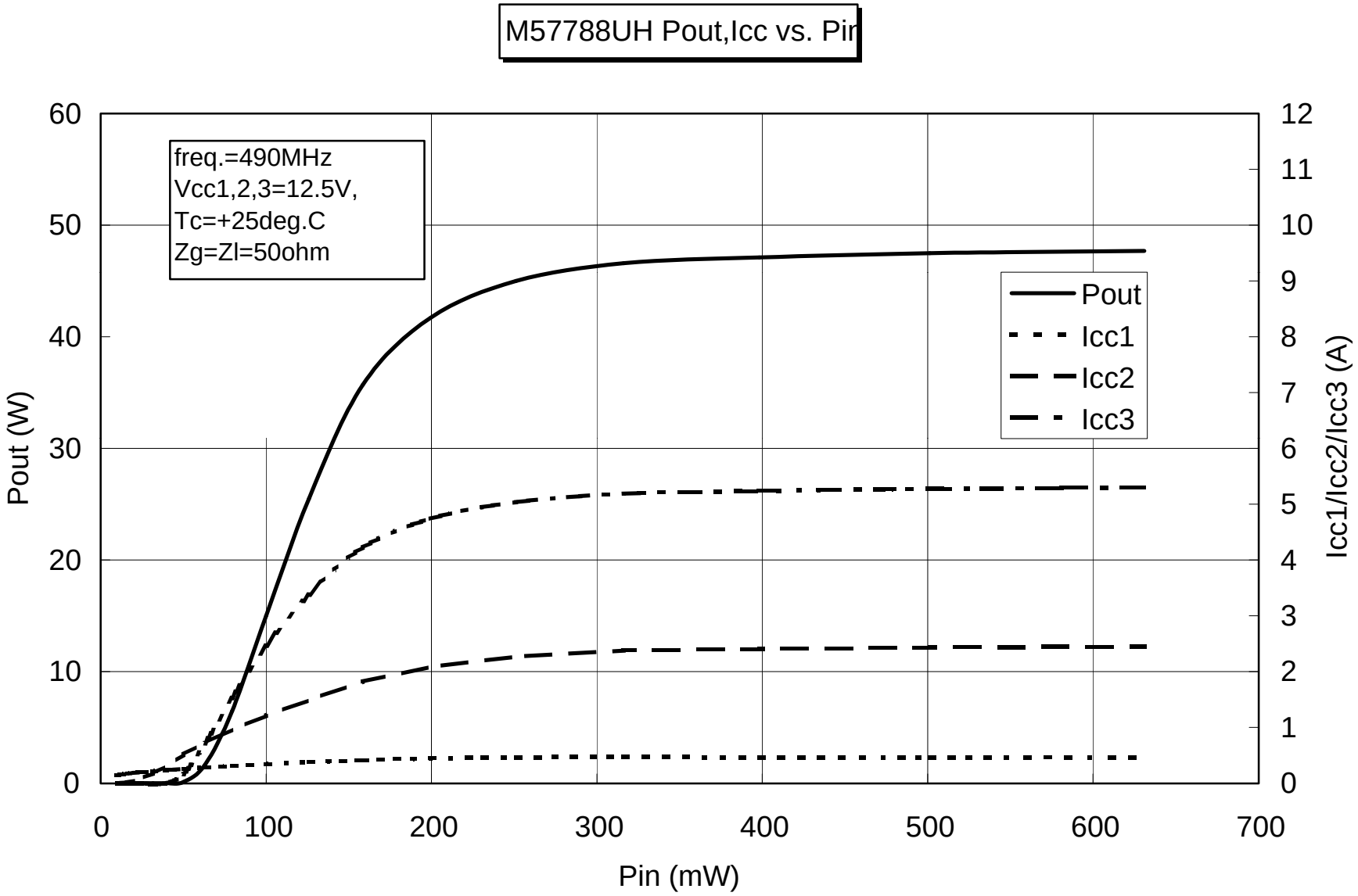
Symbol	Parameter	Test conditions	Limits		Unit
			Min	Max	
f	Frequency range	P_{in} = 0.3W V_{CC} = 12.5V $Z_G = Z_L = 50\ \Omega$	470	490	MHz
P_O	Output power		40		W
η_T	Total efficiency		40		%
2fo	2nd. harmonic			−30	dBc
3fo	3rd. harmonic			−30	dBc
ρ_{in}	Input VSWR			3.5	−
−	Load VSWR tolerance	V_{CC} = 15.2V, P_O = 40W (P_{in} : controlled) Load VSWR = 8.8 : 1 (All phase), Z_G = 50 Ω	No degradation or destroy		−

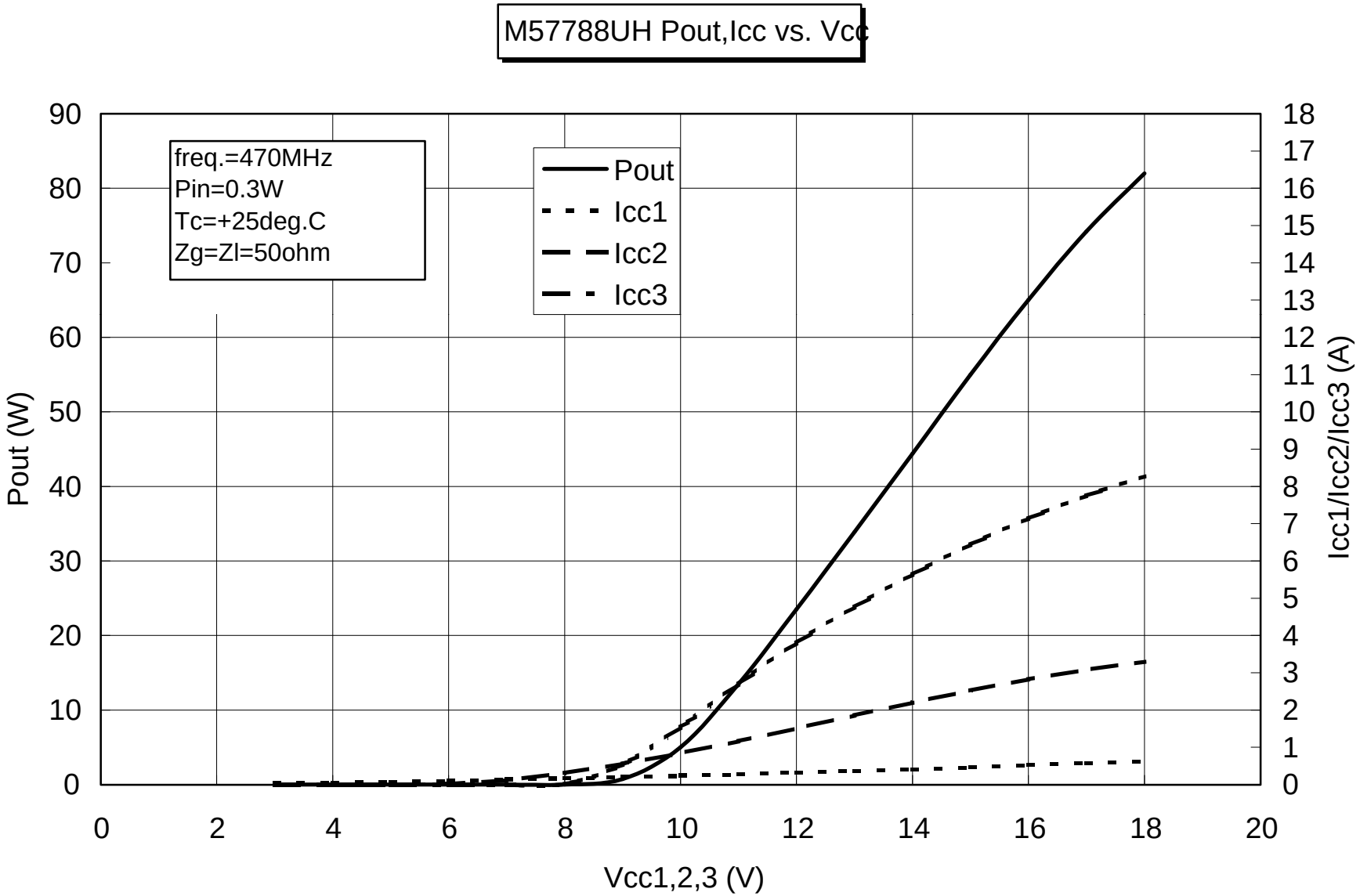
Note. Above parameters, ratings, limits and conditions are subject to change.

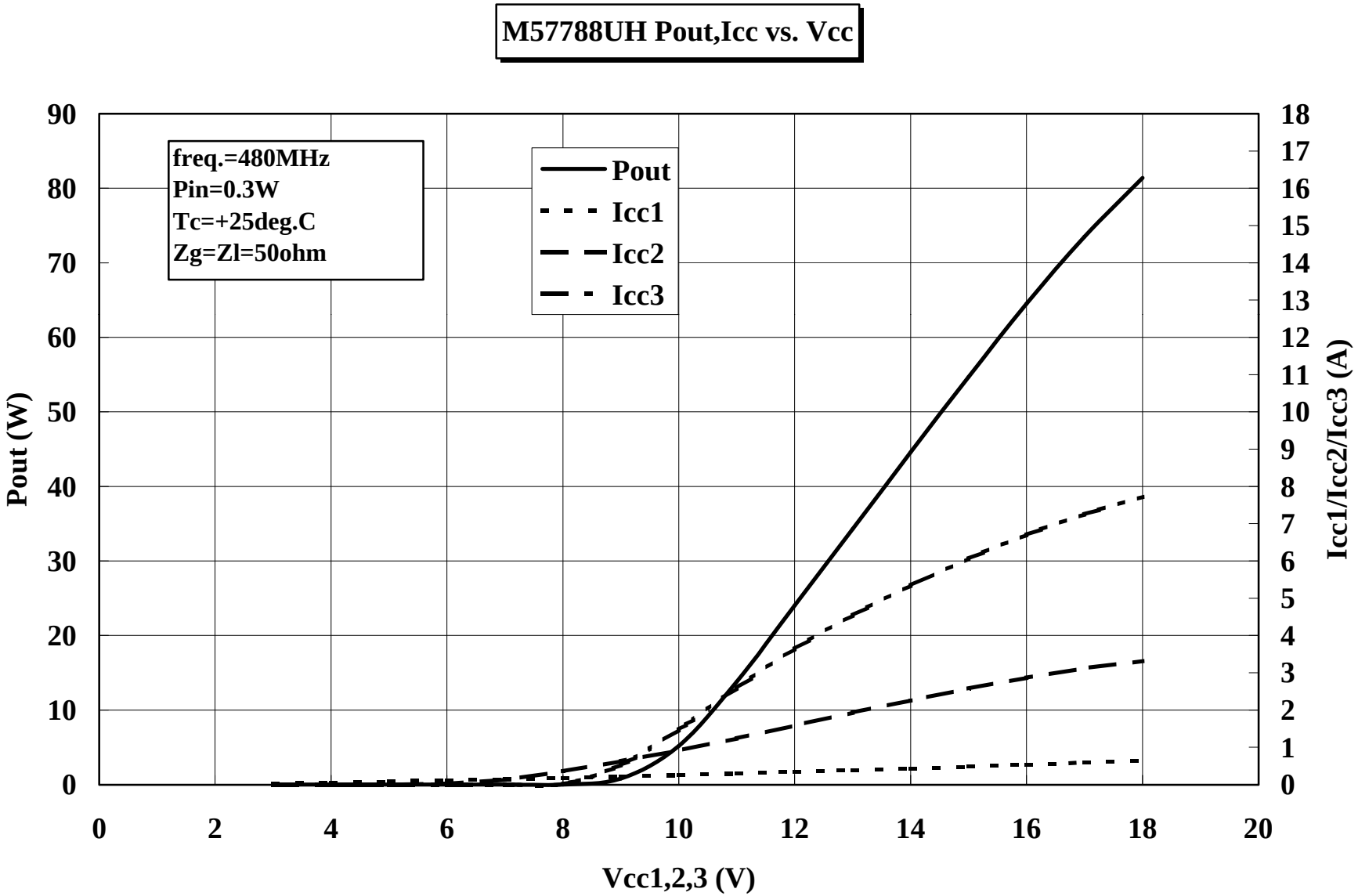

M57788UH Pout,Icc vs. freq
Po (W)
Icc1 (A)
Icc2 (A)
Icc3 (A)
Vcc1,2,3=12.5V,
Pin=0.3W,
Tc=+25deg.C
Zg=Zl=50ohm
Pout (W)
Icc1/Icc2/Icc3 (A)
freq.(MHz)
0
10
20
30
40
50
60
0
1
2
3
4
5
6
7
8
9
10
11
12
440
450
460
470
480
490
500
510
520

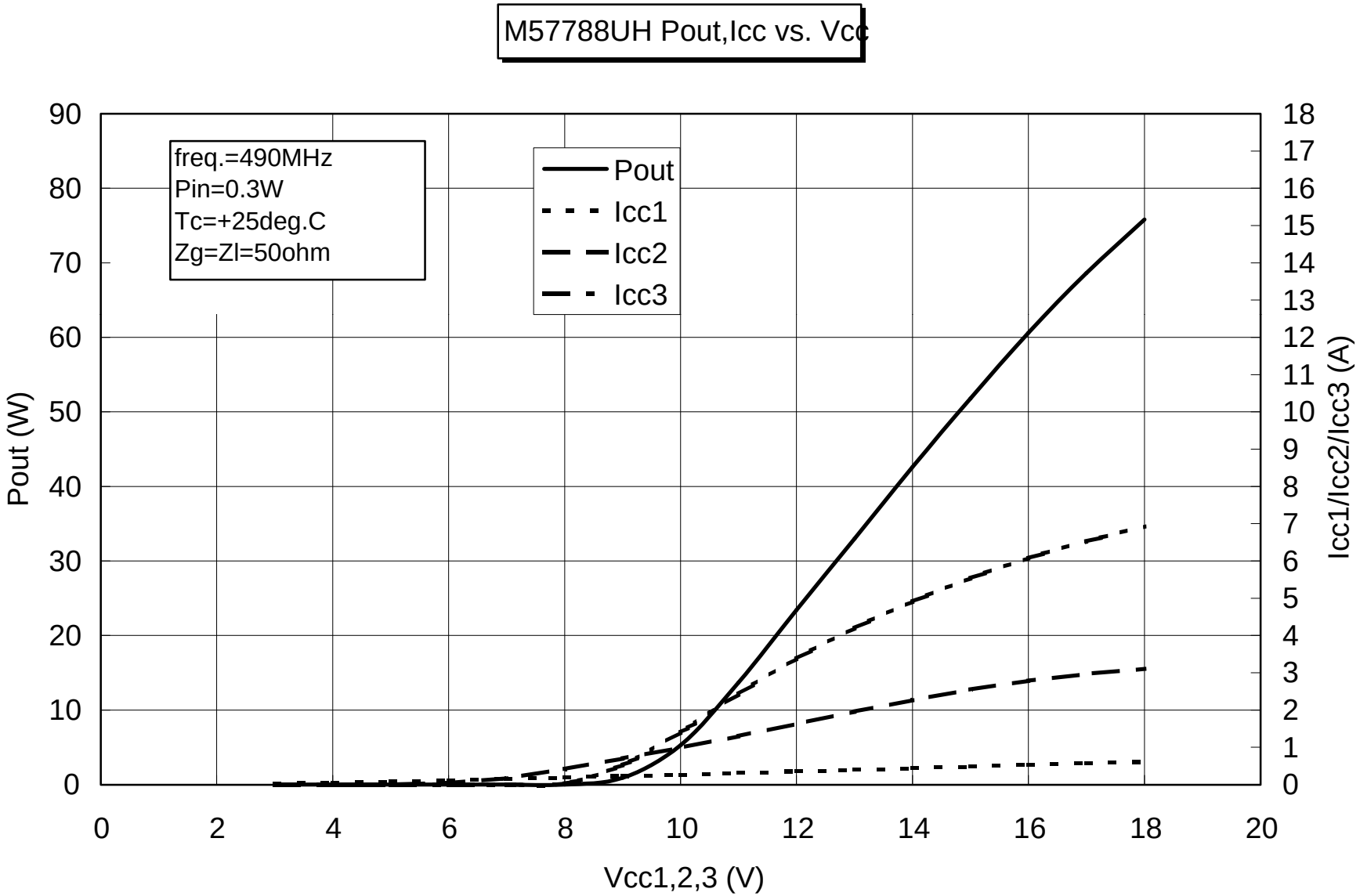

M57788UH Pout,Icc vs. Pin
freq.=470MHz
Vcc1,2,3=12.5V,
Tc=+25deg.C
Zg=Zl=50ohm
Pout
Icc1
Icc2
Icc3
Pout (W)
Icc1/Icc2/Icc3 (A)
Pin (mW)
0
10
20
30
40
50
60
0
1
2
3
4
5
6
7
8
9
10
11
12
0
100
200
300
400
500
600
700

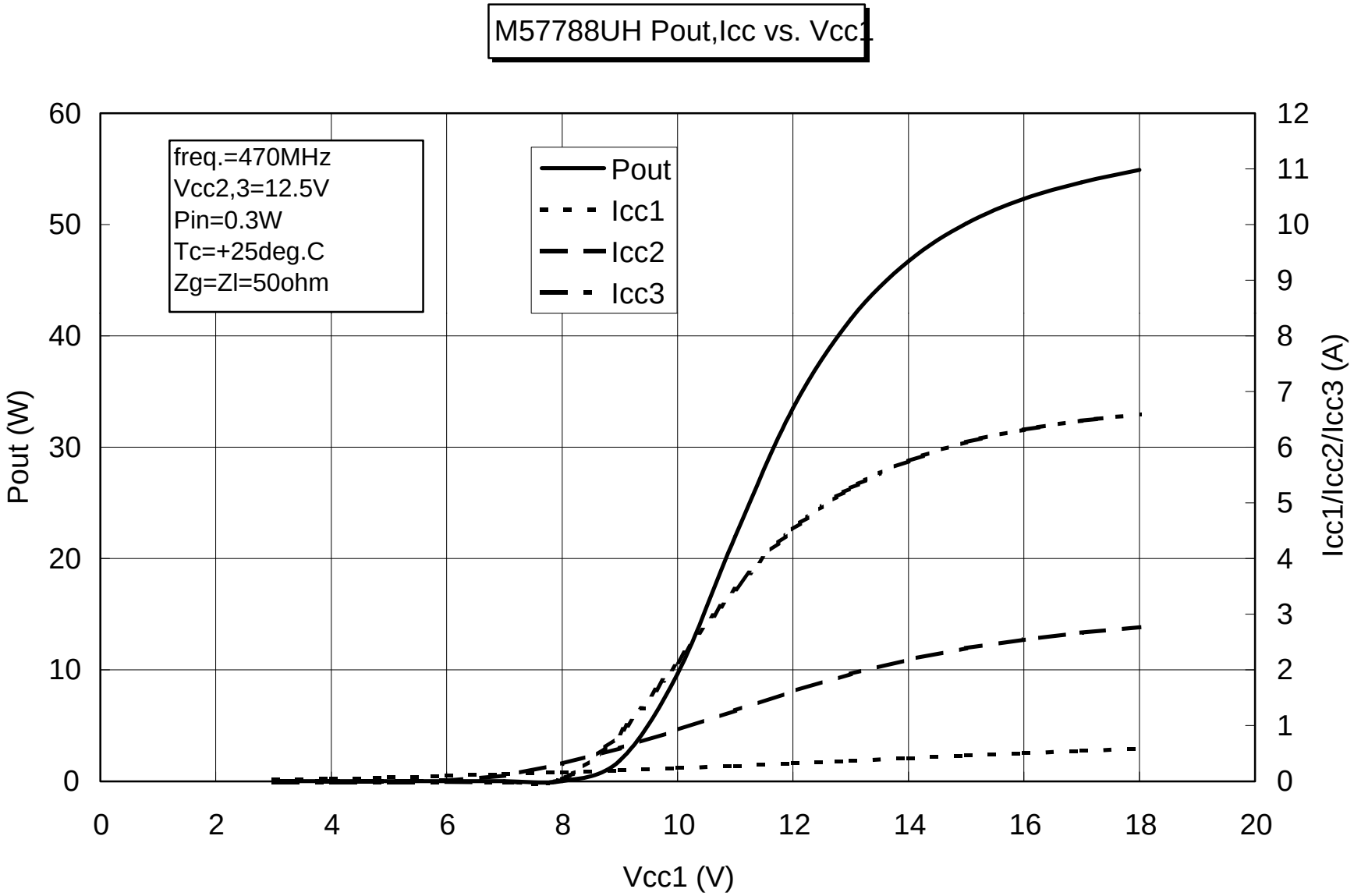

M57788UH Pout,Icc vs. Pin
freq.=480MHz
Vcc1,2,3=12.5V,
Tc=+25deg.C
Zg=Zl=50ohm
Pout
Icc1
Icc2
Icc3
Pout (W)
Icc1/Icc2/Icc3 (A)
Pin (mW)
0
10
20
30
40
50
60
0
1
2
3
4
5
6
7
8
9
10
11
12
0
100
200
300
400
500
600
700

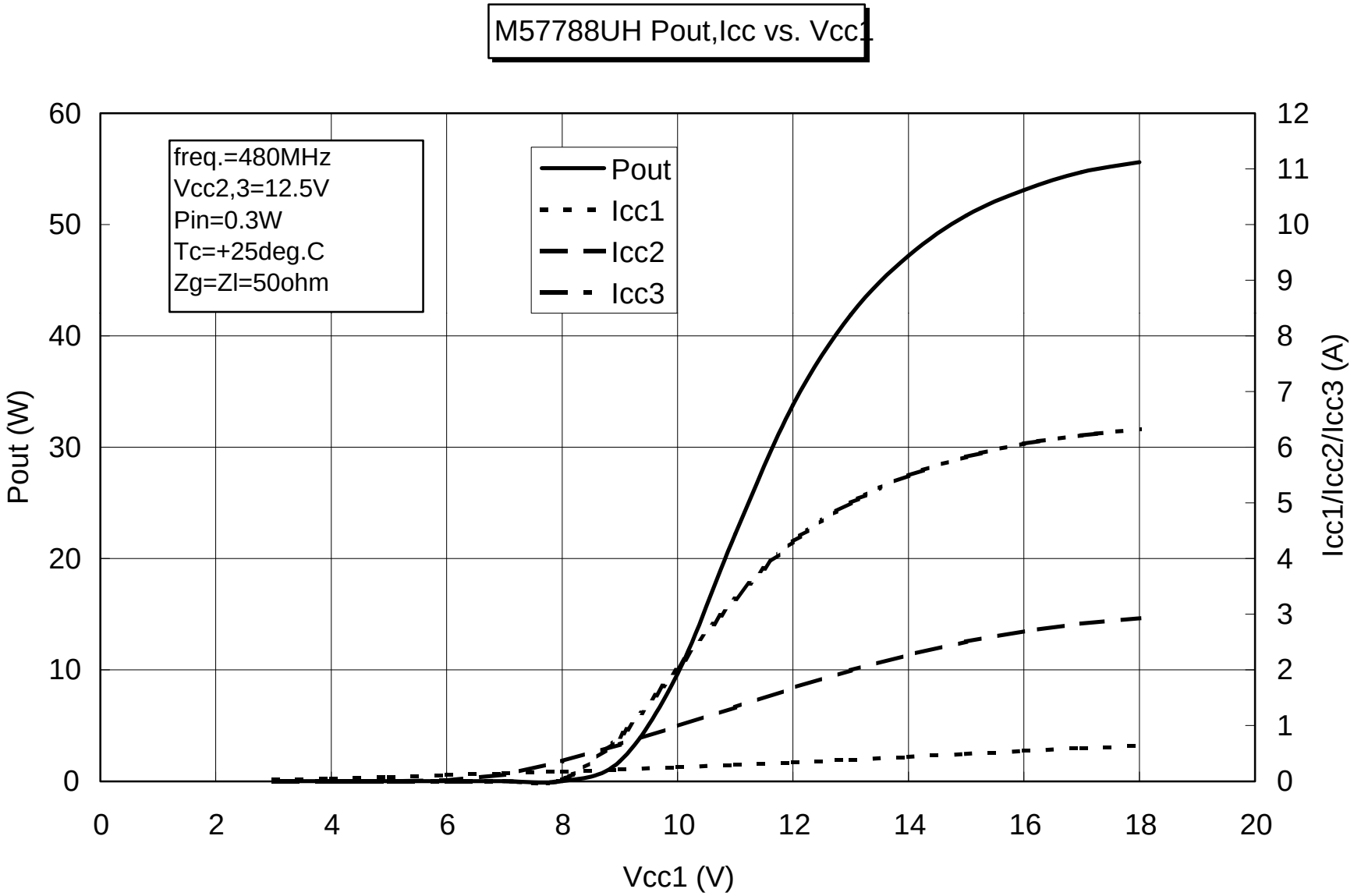

M57788UH Pout,Icc vs. Pin
freq.=490MHz
Vcc1,2,3=12.5V,
Tc=+25deg.C
Zg=Zl=50ohm
Pout
Icc1
Icc2
Icc3
Pout (W)
Icc1/Icc2/Icc3 (A)
Pin (mW)
0
10
20
30
40
50
60
0
1
2
3
4
5
6
7
8
9
10
11
12
0
100
200
300
400
500
600
700


M57788UH Pout,Icc vs. Vcc
freq.=470MHz
Pin=0.3W
Tc=+25deg.C
Zg=Zl=50ohm
Pout
Icc1
Icc2
Icc3
Pout (W)
Icc1/Icc2/Icc3 (A)
Vcc1,2,3 (V)
0
10
20
30
40
50
60
70
80
90
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
0
2
4
6
8
10
12
14
16
18
20


M57788UH Pout,Icc vs. Vcc
freq.=480MHz
Pin=0.3W
Tc=+25deg.C
Zg=Zl=50ohm
Pout
Icc1
Icc2
Icc3
Pout (W)
Icc1/Icc2/Icc3 (A)
Vcc1,2,3 (V)
0
10
20
30
40
50
60
70
80
90
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
0
2
4
6
8
10
12
14
16
18
20


M57788UH Pout,Icc vs. Vcc
freq.=490MHz
Pin=0.3W
Tc=+25deg.C
Zg=Zl=50ohm
Pout
Icc1
Icc2
Icc3
Pout (W)
Icc1/Icc2/Icc3 (A)
Vcc1,2,3 (V)
0
10
20
30
40
50
60
70
80
90
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
0
2
4
6
8
10
12
14
16
18
20


M57788UH Pout,Icc vs. Vcc1
freq.=470MHz
Vcc2,3=12.5V
Pin=0.3W
Tc=+25deg.C
Zg=Zl=50ohm
Pout
Icc1
Icc2
Icc3
Pout (W)
Icc1/Icc2/Icc3 (A)
Vcc1 (V)
0
10
20
30
40
50
60
0
1
2
3
4
5
6
7
8
9
10
11
12
0
2
4
6
8
10
12
14
16
18
20


M57788UH Pout,Icc vs. Vcc1
freq.=480MHz
Vcc2,3=12.5V
Pin=0.3W
Tc=+25deg.C
Zg=Zl=50ohm
Pout
Icc1
Icc2
Icc3
Pout (W)
Icc1/Icc2/Icc3 (A)
Vcc1 (V)
0
10
20
30
40
50
60
0
1
2
3
4
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10
11
12
0
2
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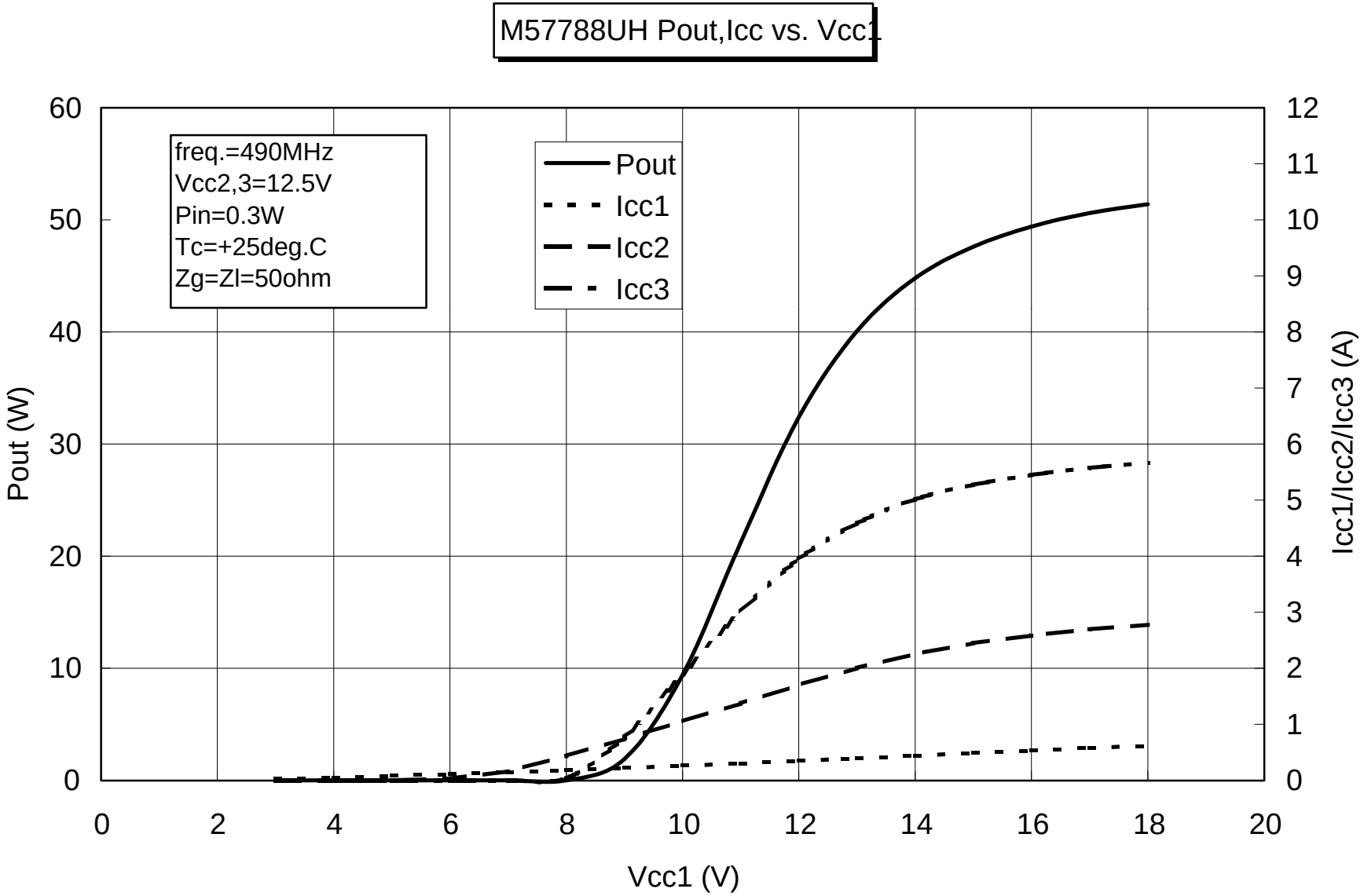
16
18
20


M57788UH Pout,Icc vs. Vcc1
freq.=490MHz
Vcc2,3=12.5V
Pin=0.3W
Tc=+25deg.C
Zg=Zl=50ohm
Pout
Icc1
Icc2
Icc3
Pout (W)
Icc1/Icc2/Icc3 (A)
Vcc1 (V)
0
10
20
30
40
50
60
0
1
2
3
4
5
6
7
8
9
10
11
12
0
2
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12
14
16
18
20