OKI Electronic Components

This version:1.0 Sept. 2000

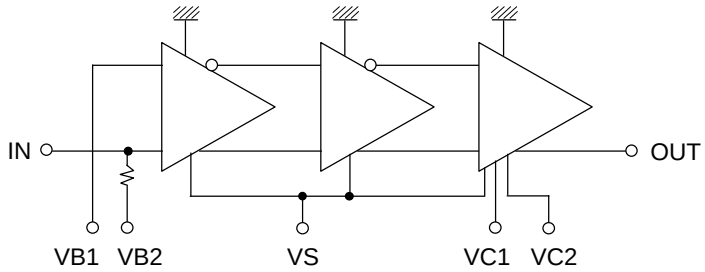
KGL4115F

10 Gbps EA Modulator Driver IC

FEATURES

- High Output Voltage: Maximum Amplitude > 2.7 Vpp
- X-Point Control Function
- Output Amplitude Control Function
- Output Bias Control Function

FUNCTION DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min	Max	Unit	Note
Supply Voltage	VS	-6.5	0.3	V	
X-Point Control Voltage	VB1	VS-4.8 (Min. -6.5)	VS+2.4 (Max. 0.3)	V	
Output Amplitude Control Voltage	VC1	-6.5	VS+1.2 (Max. 0.3)	V	
Output Bias Control Voltage	VC2	-6.5	VS+2.4 (Max. 0.3)	V	
Operating Temperature at Package Base	Ts	-10	100	°C	
Storage Temperature	Tst	-40	125	°C	

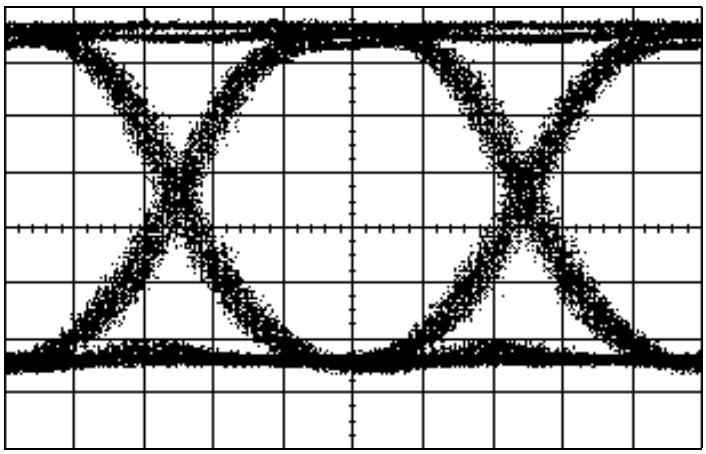
RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Min	Typ	Max	Unit
Supply Voltage	VS	-5.5		-5.0	V
X-Point Control Voltage	VB1	VS+0.8		VS+2.2	V
Output Amplitude Control Voltage	VC1	VS		VS+1.0	V
Output Bias Control Voltage	VC2	VS		VS+2.2	V
Operating Temperature at Package Base	Ts	0		70	°C
Input Interface	AC coupled (External blocking capacitor is required)				
Output Interface	DC coupled				

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Supply Current	Iss	including bias current = 20 mA			285	mA
Voltage Offset	Vo (ofs)	50 Ω load, bias current = 20 mA	-1		0	V
Input Amplitude	Vin		0.5		1	Vpp
Output Amplitude (Max)	Vo (Max)	50 Ω load	2.7			Vpp
Output Low Voltage (Min)	V (LO)	50 Ω load			-3	V
Output High Voltage (Min)	V (HI)	50 Ω load			-1	V
X-Point Control	Xp	NRZ, 50 Ω load	20		80	%
X-Point Stability	Del (Xp)	0–70°C 50 Ω load			10	%
Output Rise/Fall Time	Tr/Tf	50 Ω load 20%/80%			40	ps
Input Return Loss	S11	100 kHz–10 GHz		15		dB

TYPICAL CHARACTERISTICS

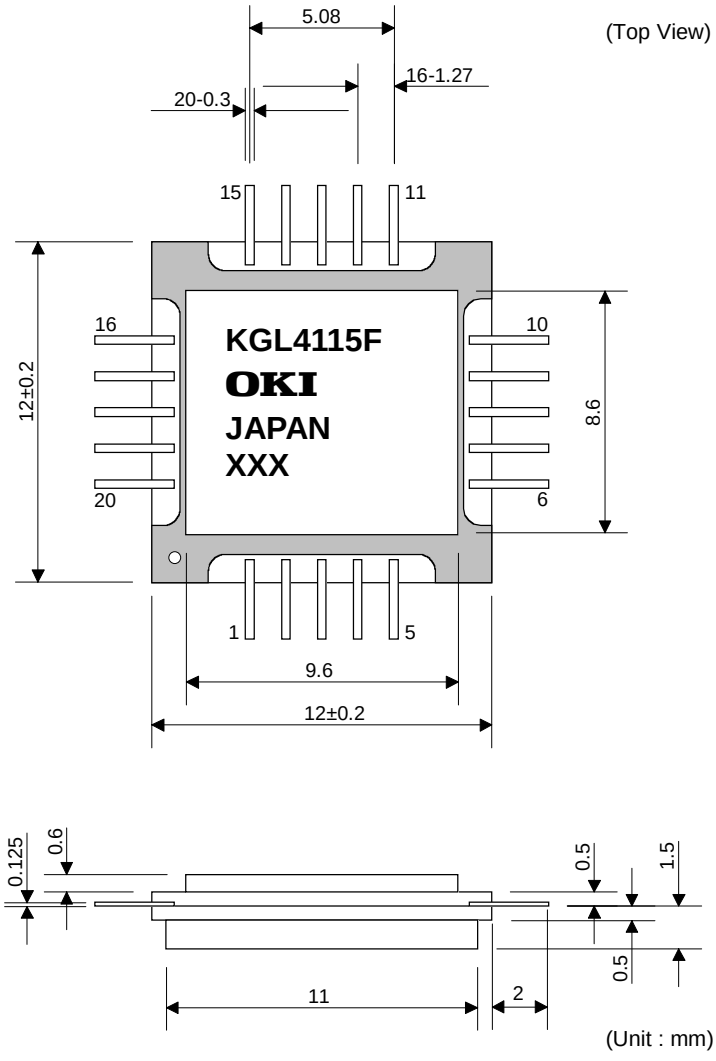


V: 500 mV/div, H: 20 ps/div

Operating Condition
VB1 = –3.8 V
VC1 = –4.0 V (Maximum Amplitude)
VC2 = –5.0 V (Bias Current: Off)
VS = –5.0 V (IS = 197.4 mA)
Input Signal:
10 Gb/s, PN31, PRBS
0.5 Vpp, Tr/Tf = 40 ps/38.2 ps (20–80%)

Output Amplitude	: 2.93 Vpp
Rise Time (20–80%)	: 31.6 ps
Fall Time (20–80%)	: 30.2 ps
Eye-Hight	: 2.69 V
Eye-Width	: 82.0 ps

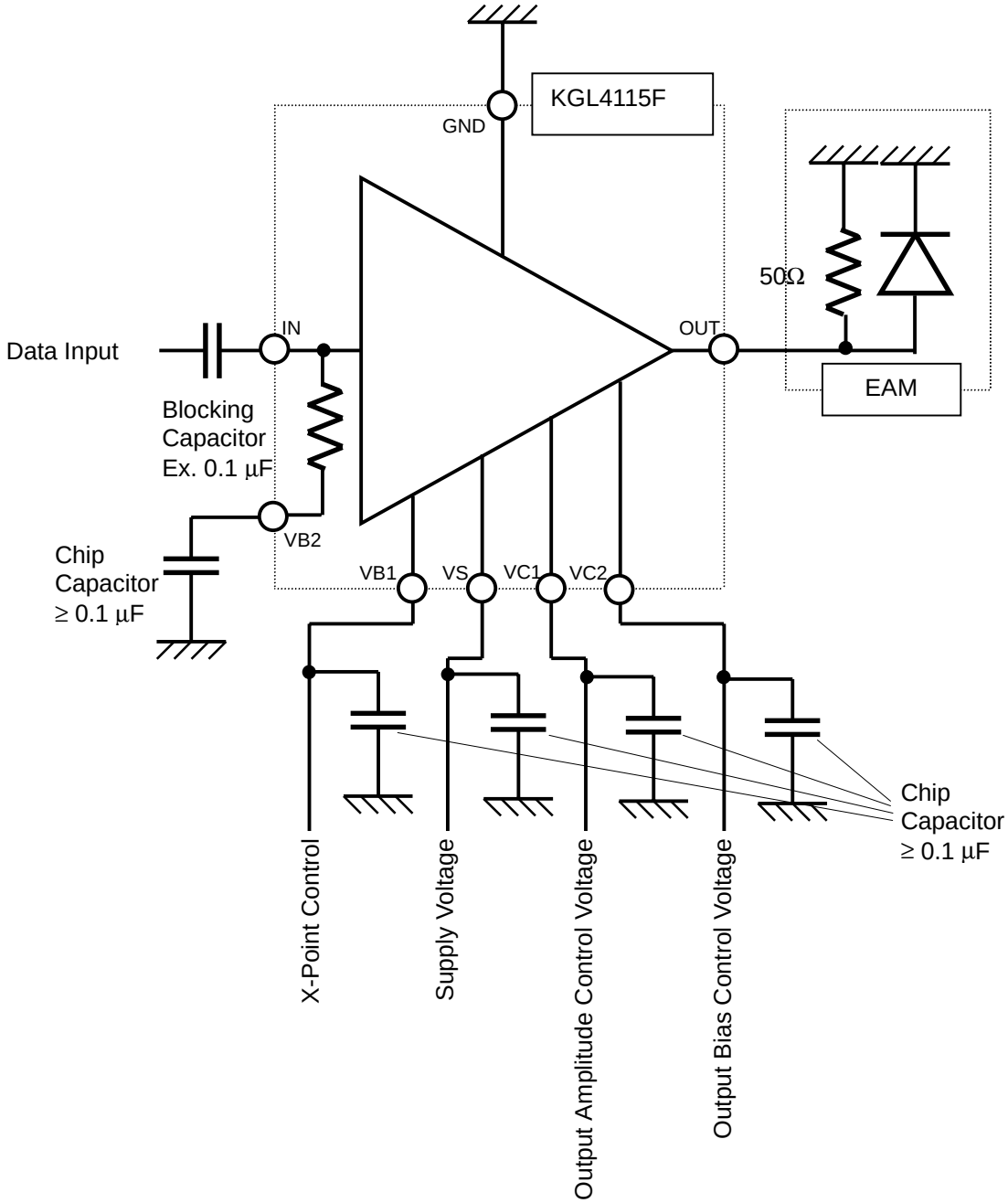
PACKAGE DIMENSIONS



PIN CONNECTION

No.	Symbol	Note
1	N.C.	No Connection
2	N.C.	No Connection
3	N.C.	No Connection
4	N.C.	No Connection
5	N.C.	No Connection
6	GND	Ground
7	OUT	Signal Output Port
8	GND	Ground
9	N.C.	No Connection
10	GND	Ground
11	VC2	Output Bias Control Voltage Port
12	VC1	Output Amplitude Control Voltage Port
13	VS	Supply Voltage Port
14	VB2	Input Termination Port
15	VB1	X-Point Control Voltage Port
16	GND	Ground
17	N.C.	No Connection
18	GND	Ground
19	IN	Signal Input Terminal
20	GND	Ground

TYPICAL APPLICATION



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