

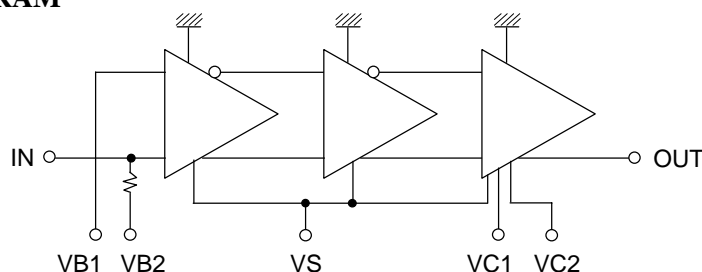
**KGL4115F**

**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	

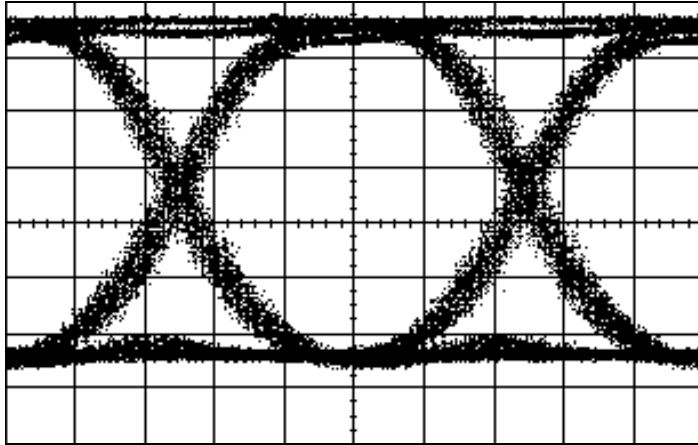
**RECOMMENDED OPERATING CONDITIONS**

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	I <sub>ss</sub>	including bias current = 20 mA			285	mA
Voltage Offset	V <sub>o</sub> (ofs)	50 Ω load, bias current = 20 mA	-1		0	V
Input Amplitude	V <sub>in</sub>		0.5		1	V <sub>pp</sub>
Output Amplitude (Max)	V <sub>o</sub> (Max)	50 Ω load	2.7			V <sub>pp</sub>
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	X <sub>p</sub>	NRZ, 50 Ω load	20		80	%
X-Point Stability	Del (X <sub>p</sub> )	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



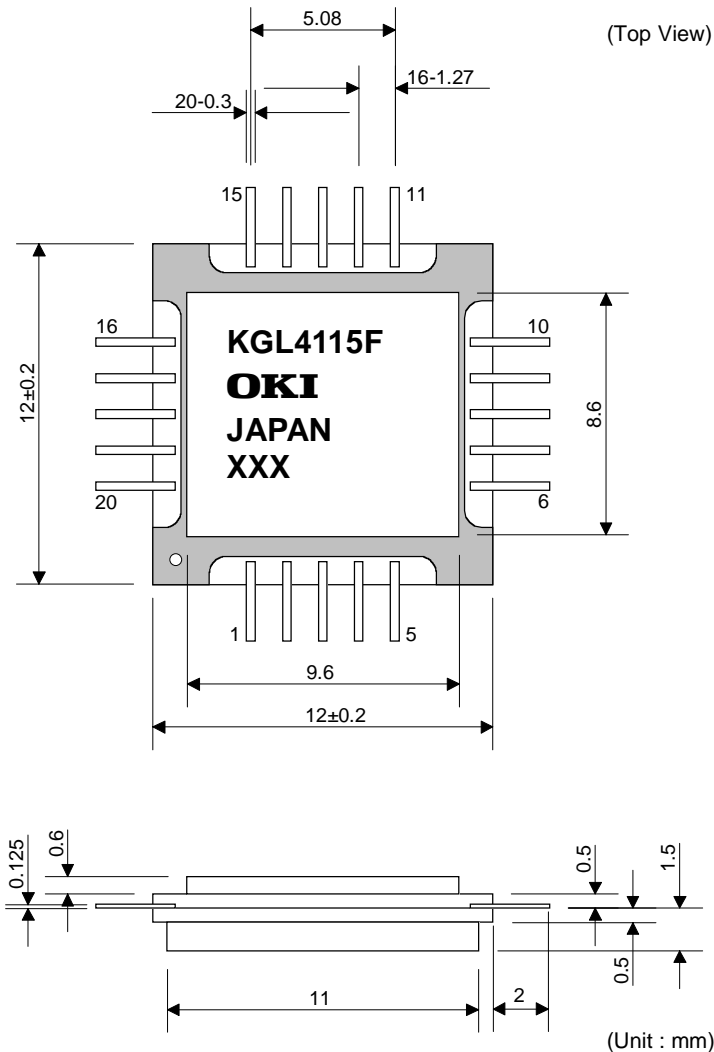
V: 500 mV/div, H: 20 ps/div

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

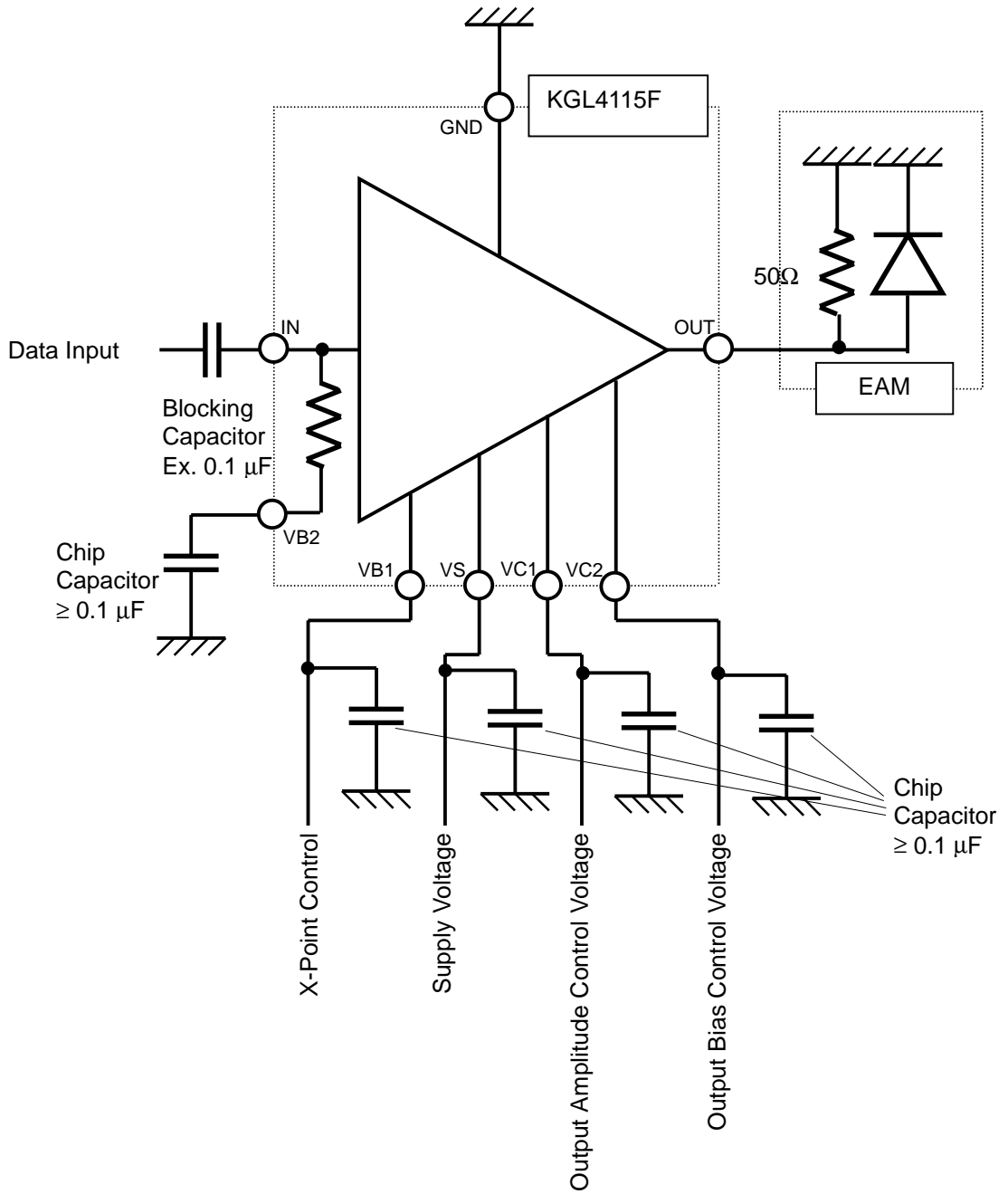
PACKAGE DIMENSIONS



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**



**NOTICE**

1. The information contained herein can change without notice owing to product and/or technical improvements. Before using the product, please make sure that the information being referred to is up-to-date.
2. The outline of action and examples for application circuits described herein have been chosen as an explanation for the standard action and performance of the product. When planning to use the product, please ensure that the external conditions are reflected in the actual circuit, assembly, and program designs.
3. When designing your product, please use our product below the specified maximum ratings and within the specified operating ranges including, but not limited to, operating voltage, power dissipation, and operating temperature.
4. Oki assumes no responsibility or liability whatsoever for any failure or unusual or unexpected operation resulting from misuse, neglect, improper installation, repair, alteration or accident, improper handling, or unusual physical or electrical stress including, but not limited to, exposure to parameters beyond the specified maximum ratings or operation outside the specified operating range.
5. Neither indemnity against nor license of a third party's industrial and intellectual property right, etc. is granted by us in connection with the use of the product and/or the information and drawings contained herein. No responsibility is assumed by us for any infringement of a third party's right which may result from the use thereof.
6. The products listed in this document are intended for use in general electronics equipment for commercial applications (e.g., office automation, communication equipment, measurement equipment, consumer electronics, etc.). These products are not authorized for use in any system or application that requires special or enhanced quality and reliability characteristics nor in any system or application where the failure of such system or application may result in the loss or damage of property, or death or injury to humans. Such applications include, but are not limited to, traffic and automotive equipment, safety devices, aerospace equipment, nuclear power control, medical equipment, and life-support systems.
7. Certain products in this document may need government approval before they can be exported to particular countries. The purchaser assumes the responsibility of determining the legality of export of these products and will take appropriate and necessary steps at their own expense for these.
8. No part of the contents contained herein may be reprinted or reproduced without our prior permission.

Copyright 2000 Oki Electric Industry Co., Ltd.