



Datasheet

No.

DS10-B005

Initial Date

2010-07-29

OB

OB2M821

Written Team

R&D Dept.

GH Zheng

I Preview


PN	OB2M821
Description	SFP transceiver, 1.25G MM 850nm 550M LC 0~70°C +3.3V

II Contents

1. Features
2. Applications
3. Absolute maximum Ratings
4. Operating Environment
5. Electrical and Optical Characteristics
6. Timing Characteristics
7. Pin Assignment
8. Block Diagram of Transceiver
9. Serial ID Memory Contents
10. Mechanical Dimensions
11. Recommended Circuit
12. Model Ordering Information

III Revision History

No.	Date	Items	Change Recording	Ver.	Rev.	Customer
1	2010-07-29	All	Initial registration	000	000	Standard
2	2017-02-04	All	Update the PN	001	001	Standard
3						
4						
5						
6						

 Communication Limited	Datasheet		DS10-B005 Final Rev.: 2010-07-29	
	Product	SFP transceiver OB serials	Ver.	000
	Part No.	OB2M821	Rev.	
			Page	2 / 8

1. Features

- ◆ Compliant with Specifications for IEEE802.3Z
- ◆ Multi-Source Package with Duplex LC Connector
- ◆ Up to 1.25Gb/s Data Links
- ◆ Multimode Fiber 850nm VCSEL
- ◆ Single +3.3V Power Supply
- ◆ Hot-Pluggable
- ◆ Compliant with Bellcore TA-NWT-000983
- ◆ Eye Safety Designed to Meet Laser Class1, Compliant with IEC60825-1
- ◆ RoHS Compliant Products

2. Applications

- ◆ Gigabit Ethernet
- ◆ 1x Fiber Channel
- ◆ Switch to Switch Interface
- ◆ Switched Backplane Applications
- ◆ Router/Server Interface
- ◆ Other Optical Links

3. Absolute Maximum Ratings (TC=25°C)

Parameter	Symbol	Remarks	Min.	Max.	Unit
Storage Temperature	T _{ST}	-	-40	+85	°C
Operating Temperature	T _P	-	0	+70	°C
Input Voltage	T _{CC}	-	0	+5	V


4. Operating Environment

Parameter	Symbol	Remarks	Min.	Typical	Max.	Unit
Supply Voltage	V _{CC}	-	+3.0	+3.3	+3.6	V
Operating Temperature	T _{OP}	-	0	-	+70	°C

5. Electrical and Optical Characteristics: (Condition: Ta=TOP)

Parameter	Symbol	Min.	Typical	Max.	Unit
Transmitter Differential Input Volt	+/-TX_DAT	200		2400	mV p-p
Supply Current	I _{CC}		130	180	mA
Tx_Disable Input Voltage – Low	V _L	0		0.8	V
Tx_Disable Input Voltage – High	V _H	2.0		V _{CC}	V
Tx_Fault Output Voltage – Low	V _{OL}	0		0.8	V

OCRE COMMUNICATION LIMITED Web: www.ocrecom.com E-Mail: sales@ocrecom.com Add. Dist.A, Building 6, Bay on the six block, Xixiang, Baoan Dist, Shenzhen, China 518102 Tel: + 86 755 2335 3855 Fax: + 86 755 2335 3855	DESIGN	CHECK	CHECK	APPROVAL

 Communication Limited	Datasheet		DS10-B005 Final Rev.: 2010-07-29	
	Product	SFP transceiver OB serials	Ver.	000
	Part No.	OB2M821	Rev.	
			Page	3 / 8

Tx_Fault Output Voltage – High	VOH	2.0		Vcc	V
Receiver Differential Output Volt	+/-RX_DAT	600		1400	mV p-p
Rx_LOS Output Voltage- Low	VOL	0		0.8	V
Rx_LOS Output Voltage- High	VOH	2.0		Vcc	V

Transmitter Section

Parameter	Symbol	Min.	Typical	Max.	Unit
Data Rate	B	-	1.25	-	Gb/s
Centre Wavelength	λ_c	830	850	860	nm
Output Spectral Width	$\Delta\lambda$	-	-	0.85	nm
Average Output Power	Po	-9.5	-	-3	dBm
Extinction Ratio	EXT	9	-	-	dB
Data Input Voltage-High	VIHS	Vcc-1.16	-	Vcc-0.89	V
Data Input Voltage -Low	VILS	Vcc-1.82	-	Vcc-1.48	V
Supply Current	ICC	-	90	130	mA
Output Optical Eye	Compliant with IEEE802.3Z				


Receiver Section:

Parameter	Symbol	Min.	Typical	Max.	Unit
Receive Sensitivity	Pmin	-	-	-17	dBm
Maximum Input Power	PMAX	-3	-	-	dBm
Signal Detect Threshold-De-Assert	SD	-	-	-18	dBm
Signal Detect Threshold-Assert	SA	-30	-	-	dBm
Hysteresis	-	-	2.0	-	dBm
Output High Voltage	VOH	Vcc-1.03	-	Vcc-0.89	V
Output Low Voltage	VOL	Vcc-1.82	-	Vcc-1.63	V
Operating Wavelength	λ_c	770	-	860	nm
Supply Current	ICC	-	80	110	mA

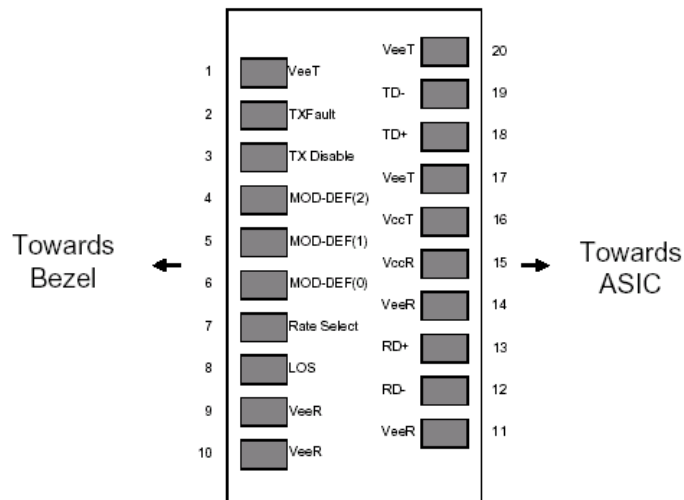
6. Timing Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
TX_DISABLE Assert Time	t_off		3	10	usec
TX_DISABLE Negate Time	t_on		0.5	1	msec
Time to initialize include reset of TX_FAULT	t_int		30	300	msec
TX_FAULT from fault to assertion	t_fault		20	100	usec
TX_DISBEL time to start reset	t_reset	10			usec
Receiver Loss of Signal Assert Time (off to On)	Ta,RX_LOS			100	usec
Receiver Loss of Signal Assert Time (on to off)	Td,RX_LOS			100	usec

OCRE COMMUNICATION LIMITED Web: www.ocrecom.com E-Mail: sales@ocrecom.com Add. Dist.A, Building 6, Bay on the six block, Xixiang, Baoan Dist, Shenzhen, China 518102 Tel: + 86 755 2335 3855 Fax: + 86 755 2335 3855	DESIGN	CHECK	CHECK	APPROVAL

 Communication Limited	Datasheet		DS10-B005 Final Rev.: 2010-07-29	
	Product	SFP transceiver OB serials	Ver.	000
	Part No.	OB2M821	Rev.	Page
				4 / 8

7. Pin Assignment



Pin out of Connector Block on Host Board


Pin Description:

Pin	Symbol	Name/Description	Ref
1	V _{EET}	Transmitter Ground(Common with Receiver Ground)	1
2	T _{FAULT}	Transmitter Fault.Low normal operation,High Fault indication	
3	T _{DIS}	Transmitter Disable.Laser output disabled on high or open	2
4	MOD_DEF(2)	Module Definition 2.Data line for Serial ID	3
5	MOD_DEF(1)	Module Definition 1.Clock line for Serial ID	3
6	MOD_DEF(0)	Module Definition 0.Grounded within the moudle	3
7	Rate Select	No connection required	
8	LOS	Loss of Signal indication.Logic 0 indicates normal operation.	4
9	V _{EER}	Receiver Ground(Common with Transmitter Ground)	1
10	V _{EER}	Receiver Ground(Common with Transmitter Ground)	1
11	V _{EER}	Receiver Ground(Common with Transmitter Ground)	1
12	RD-	Receiver Inverted DATA out.AC Coupled	
13	RD+	Receiver Non-inverted DATA out.AC Coupled	
14	V _{EER}	Receiver Ground(Common with Transmitter Ground)	1
15	V _{CCR}	Receiver Power Supply	
16	V _{CCT}	Transmitter Power Supply	
17	V _{EET}	Transmitter Ground(Common with Receiver Ground)	1
18	TD+	Transmitter Non-inverted DATA in.AC Coupled	
19	TD-	Transmitter Inverted DATA in.AC Coupled	
20	V _{EET}	Transmitter Ground(Common with Receiver Ground)	1

Notes:

1. Circuit ground is internally isolated from chassis ground.
2. Laser output disabled on TDIS >2.0V or open, enabled on TDIS <0.8V.
3. Should be pulled up with 4.7k – 10kohms on host board to a voltage between 2.0V and 3.6V.

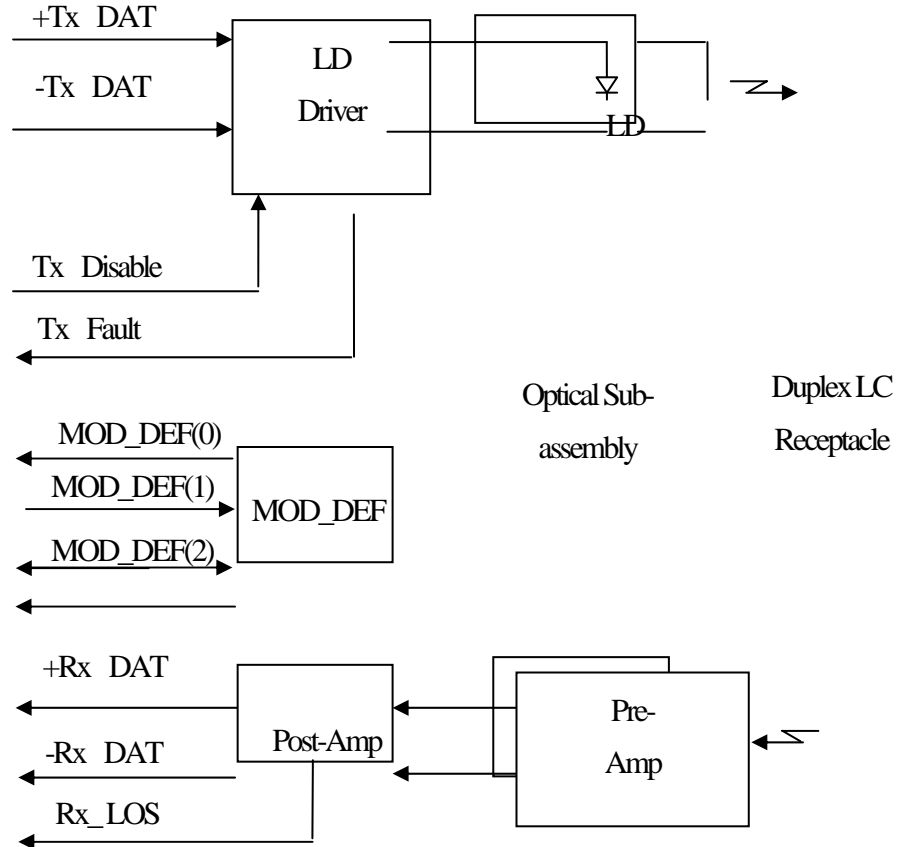
OCRE COMMUNICATION LIMITED Web: www.ocrecom.com E-Mail: sales@ocrecom.com Add. Dist.A, Building 6, Bay on the six block, Xixiang, Baoan Dist, Shenzhen, China 518102 Tel: + 86 755 2335 3855 Fax: + 86 755 2335 3855	DESIGN	CHECK	CHECK	APPROVAL

 CRE Communication Limited	Datasheet		DS10-B005 Final Rev.: 2010-07-29	
	Product	SFP transceiver OB serials	Ver.	000
	Part No.	OB2M821	Rev.	
			Page	5 / 8

MOD_DEF(0) pulls line low to indicate module is plugged in.

4. LOS is open collector output. Should be pulled up with 4.7k – 10kohms on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.


8. Block Diagram of Transceiver



9. Serial ID Memory Contents

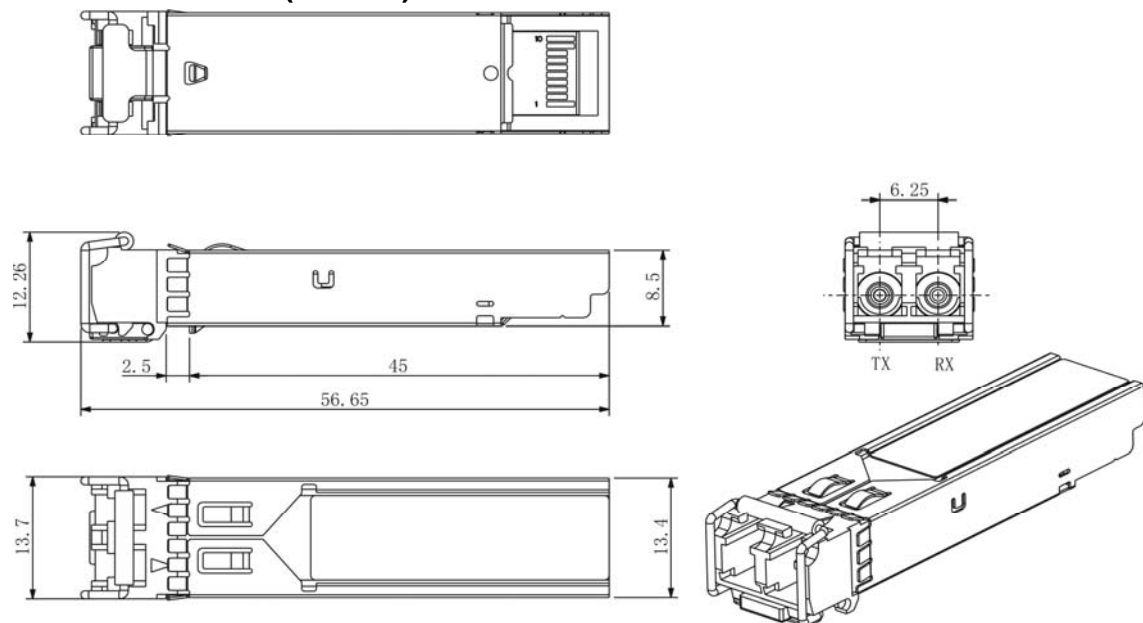
Data Address	Length (Byte)	Name of Length	Description and Contents
Base ID Fields			
0	1	Identifier	Type of Serial transceiver (03h=SFP)
1	1	Reserved	Extended identifier of type serial transceiver (04h)
2	1	Connector	Code of optical connector type (07=LC)
3-10	8	Transceiver	Gigabit Ethernet 1000Base-SX & Fiber Channel
11	1	Encoding	NRZ (03h)
12	1	BR,Nominal	Nominal baud rate, unit of 100Mbps
13-14	2	Reserved	(0000h)
15	1	Length(9um)	Link length supported for 9/125um fiber, units of 100m
16	1	Length(50um)	Link length supported for 50/125um fiber, units of 10m

OCRE COMMUNICATION LIMITED Web: www.ocrecom.com E-Mail: sales@ocrecom.com Add. Dist.A, Building 6, Bay on the six block, Xixiang, Baoan Dist, Shenzhen, China 518102 Tel: + 86 755 2335 3855 Fax: + 86 755 2335 3855	DESIGN	CHECK	CHECK	APPROVAL

 CRE Communication Limited	Datasheet		DS10-B005 Final Rev.: 2010-07-29	
	Product	SFP transceiver OB serials	Ver.	000
	Part No.	OB2M821	Rev.	
			Page	6 / 8

17	1	Length(62.5um)	Link length supported for 62.5/125um fiber, units of 10m
18	1	Length(Copper)	Link length supported for copper, units of meters
19	1	Reserved	
20-35	16	Vendor Name	SFP vendor name: OCRE
36	1	Reserved	
37-39	3	Vendor OUI	SFP transceiver vendor OUI ID
40-55	16	Vendor PN	Part Number: "OB2M821" (ASCII)
56-59	4	Vendor rev	Revision level for part number
60-61	2	Wavelength	Laser wavelength
62	1	Reserved	
63	1	CCID	Least significant byte of sum of data in address 0-62
Extended ID Fields			
64-65	2	Option	Indicates which optical SFP signals are implemented (001Ah = LOS, TX_FAULT, TX_DISABLE all supported)
66	1	BR, max	Upper bit rate margin, units of %
67	1	BR, min	Lower bit rate margin, units of %
68-83	16	Vendor SN	Serial number (ASCII)
84-91	8	Date code	OCRE's Manufacturing date code
92-94	3	Reserved	
95	1	CCEX	Check code for the extended ID Fields (addresses 64 to 94)
Vendor Specific ID Fields			
96-127	32	Readable	OCRE specific date, read only

10. Mechanical Dimensions(Unit:mm)



OCRE COMMUNICATION LIMITED Web: www.ocrecom.com E-Mail: sales@ocrecom.com Add. Dist.A, Building 6, Bay on the six block, Xixiang, Baoan Dist, Shenzhen, China 518102 Tel: + 86 755 2335 3855 Fax: + 86 755 2335 3855	DESIGN	CHECK	CHECK	APPROVAL



Communication Limited

Datasheet

DS10-B005
Final Rev.: 2010-07-29

Product SFP transceiver
OB serials

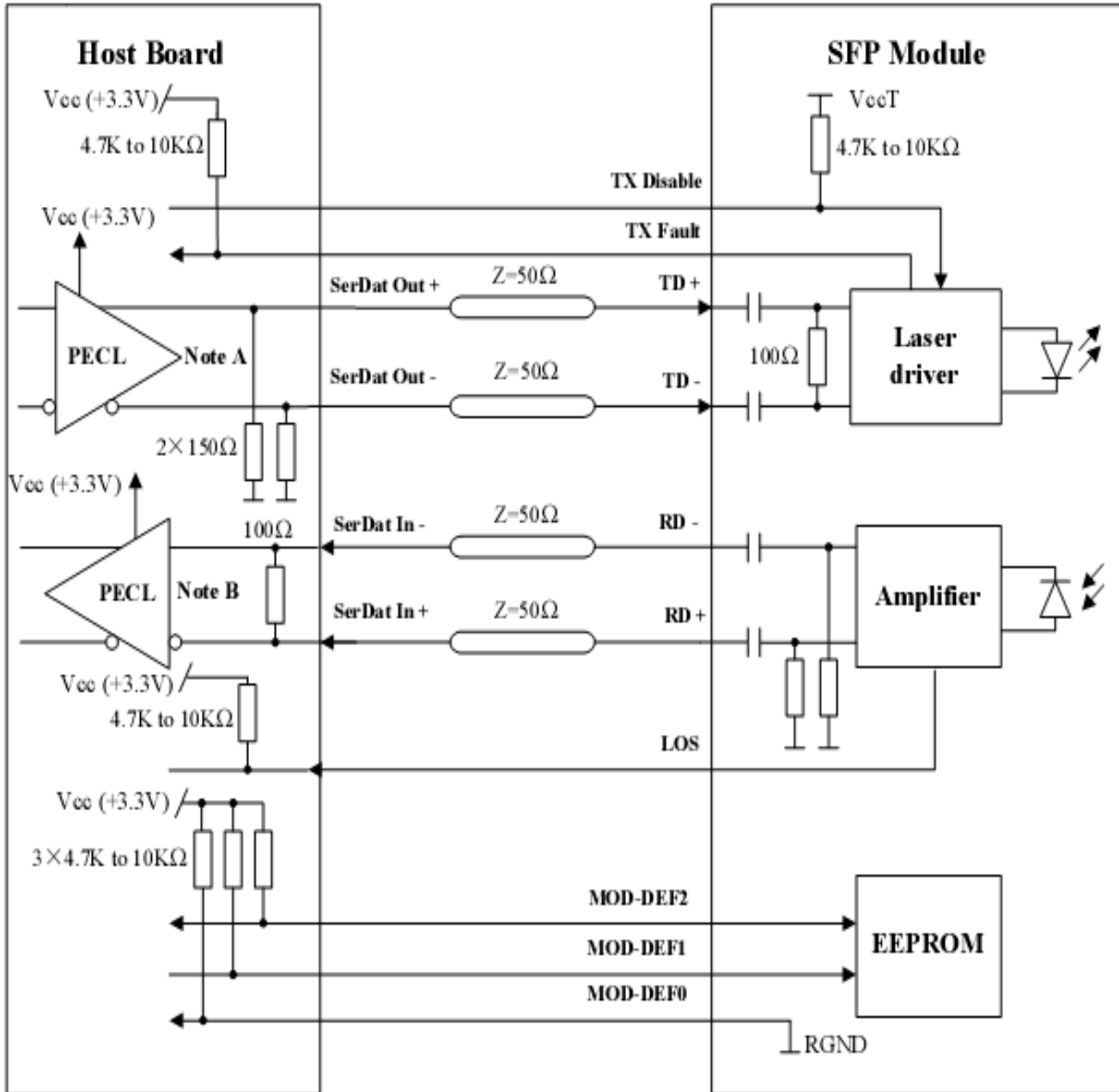
Ver. 000

Part No. OB2M821

Rev.

Page 7 / 8


11. Recommended Circuit



Note A: Circuit assumes open emitter output

Note B: Circuit assumes high impedance internal bias @Vcc-1.3V

OCRE COMMUNICATION LIMITED Web: www.ocrecom.com E-Mail: sales@ocrecom.com Add. Dist.A, Building 6, Bay on the six block, Xixiang, Baoan Dist, Shenzhen, China 518102 Tel: + 86 755 2335 3855 Fax: + 86 755 2335 3855	DESIGN	CHECK	CHECK	APPROVAL

 Communication Limited	Datasheet		DS10-B005 Final Rev.: 2010-07-29	
	Product	SFP transceiver OB serials	Ver.	000
	Part No.	OB2M821	Rev.	
			Page	8 / 8

12. Model Ordering Information

PN	Description
OB2M821	SFP transceiver, 1.25G MM 850nm 550M LC 0~70°C +3.3V
OB2M841	SFP transceiver, 1.25G MM 850nm 550M LC DDMI 0~70°C +3.3V
OB2M822	SFP transceiver, 1.25G MM 850nm 550M LC -40~85°C +3.3V
OB2M842	SFP transceiver, 1.25G MM 850nm 550M LC DDMI -40~85°C +3.3V
OB2M823	SFP transceiver, 1.25G MM 850nm 550M LC -20~70°C +3.3V
OB2M843	SFP transceiver, 1.25G MM 850nm 550M LC DDMI -20~70°C +3.3V

OCRE COMMUNICATION LIMITED Web: www.ocrecom.com E-Mail: sales@ocrecom.com Add. Dist.A, Building 6, Bay on the six block, Xixiang, Baoan Dist, Shenzhen, China 518102 Tel: + 86 755 2335 3855 Fax: + 86 755 2335 3855	DESIGN	CHECK	CHECK	APPROVAL