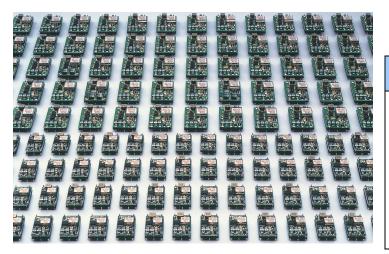


6 WATT DC-DC CONVERTER



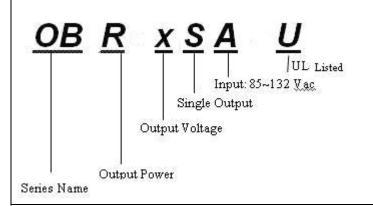


Features

- 1.PCB Mountable
- 2. Small, Light Weight
- 3. High Efficiency
- 4. Cost effective
- 5. Output Voltage adjustable
- 6. Over Voltage Protection
- 7. EMI: complies to FCC/B
- 8. Safety: UL 1950, CSA 950(C-UL) approved

General Description

OB-Series AC/DC Switching Power Supplies are designed and built to be installed right onto the user's printed circuit board like a piece of "patch-work". They are small, light in weight and cost effective.





SC/WC05 Input Specifications

Specifications						Мо	del					
OBR**SC/WC05 6WATTS/SINGLE/2 OUTPUT	OBR05	5SC05	OBR12	SC05	OBR1	5SC05	OBR24	SC05	OBR22	2WC05	OBR23	WC05
Input Characteristic												
Input Voltage DC[V]	5	5	5		5	5	5			5	5	
Input Range DC[V]		4.5-6										
Inrush Current [A]						Not sp	ecified					
Input Range												
at no load [mA](typical)	50	51	68	60	75	62	88	67	106	93	116	98
at full load[mA](typical)	1351	578	1600	676	1548	654	1590	668	1642	697	1568	662
Line Back Noise [mVp-p](typical)	300	150	300	150	300	150	300	150	300	150	300	150
Efficiency [%] (typical) *1	7-	4	74	1	7	 5	76		7	'4	75	5



SC/WC05 Output Specifications

Specifications			Mo	del					
OBR**SC/WC05	OBR05SC05	OBR12SC05	OBR15SC05	OBR24SC05	OBD2	2WC05	OBD2	3WC05	
6WATTS/SINGLE/2 OUTPUT	OBRUSSCUS	OBK 123C03	OBK 155C05	OBR243C03	UBRZZ	20000	OBRZ	30000	
Output Voltage [V]	5	12	15	24	+12	-12	+15	-15	
Output Current [A]	1	0.50	0.40	0.26	0.025	5-0.25	0.020	0-0.20	
Voltage Tolerance [mV](maximum) *2	100	240	300	480	240	240	300	300	
Ripple and Noise [mVp-p](maximum) *3			10	00					
Regulation									
a.Static Line Regulation [mV](maximum)	25	60	75	120	60	60	75	75	
b.Dynamic Line Regulation +/-[mV](maximum) *4	200	360	450	720	480	480	600	600	
c.Static Load Regulation [mV](maximum) *5	25	60	75	120	±1000	±1000	±1200	±1200	
[mV](maximum) *6					±480	±480	±600	±600	
[mV](maximum) *7					±60	±60	±75	±75	
d.Temperature Coefficient *8			0.03%/°C	(maximum)					
e.Drift[mV](maximum) *9	40	75	90	135	75	75	90	90	
f.Dynamic Load Regulation [mV](maximum) *10	150	360	450	720	360	360	450	450	
g.Recovery Time *4,*10			20mS(typical)					
Rise up time				rated input/output					
Hold up time			Not sp	ecified					
Functions			·						
Overcurrent Protection	C a l alla a a	als/Command Linesidina au				4			
Over coltage Protection	Folubac	ck/Current Limiting	with automatic rec	overy at discontin	uous snoi	t Circuit C	Onditions		
Overvoltage Protection			Not av	ailable					
Remote Sence			Not av	ailable					
Trimming of output voltage[mV] *11	+250	+250	+350	+650					
[mV] *12	-250	-900	-1600	-4000					
Input Fuse				alled	ı				
Environmental			11100	uncu					
Operating Temperature			-20 to	71°C					
(derating)		3.5%	s/°C (50°Cto 71°C)(out of warranty ≧	71°C)				
Operating Humidity				on-condensing)	,				
Storage Temperature				+85°C					
Storage Humidity			20 to 90%/RH(r	non-condensing)					
Withstanding Voltage	Primary-Secondar	ry AC500V for 1r	,	<u> </u>					
	Primary-Secondar) by DC500V insu	lation tester					
Capacitance(input-output) [pF](typical)	· · ·	•		200					
Vibration	5-10Hz:10mm doub	ole amplitude 10-55Hz	:2G.19.6m/s ² 20minu	tes' period for 60min	utes each a	alona X Y 7	z axes(non-	operating)	
Shock	5-10Hz:10mm double amplitude,10-55Hz:2G,19.6m/s²,20minutes' period for 60minutes each along X,Y,Z axes(non-operating) 294m/s²								
Cooling				ection					
Weight (typical)	open board type:12g								
Conditions:									

- *1 at 25°C and rated input/output
- *2 OBR**WC0512 satisfies the above-mentioned specifications at the same load conditions on both outputs
- *3 measured by a probe at the output connector at a 0 to 100MHz bandwidth
- *4 when input voltage changed from 4.5V to 16V rapidly at rated input
- *5 when output current changed from 0mA to rated current keeping the current of other output below minimum rated current at rated input
- *6 when output current changed from minimum rated current to rated current keeping the current of other output above minimum rated current at rated input
- *7 output current of both outputs changed from 0mA to rated current identically at rated input
- *8 at -20 to +71°C
- *9 for 7hour period after 1hour warm-up at 25°C and rated input/output
- *10 when output current changed rapidly between 25% and 75% of rated current at rated input
- *11 to reduce output voltage, put a resistor between pin"0" and trimming pin
- *12 to increase output voltage,put a resistor between pin"+" and trimming pin



SC/WC0512 Input Specifications

Specifications		Model										
OBR**SC/WC0512 6WATTS/SINGLE/2 OUTPUT	OBR05	SC0512	OBR12S	C0512	OBR15	SC0512	OBR24S	C0512	OBR22	WC0512	OBR23V	VC0512
Input Characteristic												
Input Voltage DC[V]	5	12	5	12	5	12	5	12	5	12	5	12
Input Range DC[V]		4.5-16										
Inrush Current [A]		Not specified										
Inrush Current [A]												
at no load [mA](typical)	50	51	68	60	75	62	88	67	106	93	116	98
at full load[mA](typical)	1351	578	1600	676	1548	654	1590	668	1642	697	1568	662
Line Back Noise [mVp-p](typical)	300	150	300	150	300	150	300	150	300	150	300	150
Efficiency [%] (typical) *1	74	72	75	74	77	76	78	78	75	74	76	75



OC/WC0512 Output Specifications

Specifications			Mo	odel				
OBR**SC/WC0512	OBR05SC0512	OBR12SC0512	OBR15SC0512	OBR24SC0512	OPP22	WC0512	OPP33	W C 0 5 1 2
6WATTS/SINGLE/2 OUTPUT	OBR055C0512	OBK 123C0312	OBK 155C0512	OBR243C0312	OBRZZI	W C0312	OBRZS	W C0312
Output Voltage [V]	5	12	15	24	+12	-12	+15	-15
Output Current [A]	1	0.50	0.40	0.26	0.025	-0.25	0.020	0-0.20
Voltage Tolerance [mV](maximum) *2	100	240	300	480	240	240	300	300
Ripple and Noise [mVp-p](maximum) *3			1	00	=			
Regulation								
a.Static Line Regulation [mV](maximum)	25	60	75	120	60	60	75	75
b.Dynamic Line Regulation +/-[mV](maximum) *4	200	360	450	720	480	480	600	600
c.Static Load Regulation [mV](maximum) *5	25	60	75	120	±1000	±1000	±1200	±1200
[mV](maximum) *6					±480	±480	±600	±600
[mV](maximum) *7					±60	±60	±75	±75
d.Temperature Coefficient *8			0.03%/°¢	maximum)		•		
e.Drift[mV](maximum) *9	40	75	90	135	75	75	90	90
f.Dynamic Load Regulation [mV](maximum) *10	150	360	450	720	360	360	450	450
g.Recovery Time *4,*10			20mS((typical)				
Rise up time			20mS(typical) at	rated input/output				
Hold up time			Not sp	ecified				
Functions								
Overcurrent Protection	Foldba	ack/Current Limiting	with automatic rec	overy at discontinue	ous short	circuit co	nditions	
Overvoltage Protection				/ailable				
Remote Sence				/ailable				
Trimming of output voltage[mV] *11	+250	+250	+350	+650				
[mV] *12	-250	-900	-1600	-4000				
Input Fuse	-230	-500						
•			Inst	alled				
Environmental			20.4	o 71°C				
Operating Temperature		2		out of warranty <u></u> 21	°^			
(derating)		3	, ,,		4			
Operating Humidity				on-condensing) o +85°C				
Storage Temperature								
Storage Humidity	D: 0 I	10500//	•	non-condensing)				
Withstanding Voltage	Primary-Secondary							
Isolation Resistance	Primary-Secondary	y 50MΩ(minimum)	by DC500V insulat					
Capacitance(input-output) [pF](typical)				200				
Vibration	5-10Hz:10mm doub	le amplitude,10-55Hz			utes each a	along X,Y,Z	Z axes(non-	-operating)
Shock				m/s ²				
Cooling				ection				
Weight (typical)			open boar	d type:12g				
Conditions:		·	·	·	-			

- *1 at 25°Cand rated input/output
- *2 OBR**WC0512 satisfies the above-mentioned specifications at the same load conditions on both outputs
- *3 measured by a probe at the output connector at a 0 to 100MHz bandwidth
- *4 when input voltage changed from 4.5V to 16V rapidly at rated input
- *5 when output current changed from 0mA to rated current keeping the current of other output below minimum rated current at rated input
- *6 when output current changed from minimum rated current to rated current keeping the current of other output above minimum rated current at rated input
- *7 output current of both outputs changed from 0mA to rated current identically at rated input
- *8 at -20 to +71°C
- *9 for 7hour period after 1hour warm-up at 25° Cand rated input/output
- *10 when output current changed rapidly between 25% and 75% of rated current at rated input
- *11 to reduce output voltage,put a resistor between pin"0" and trimming pin
- *12 to increase output voltage, put a resistor between pin"+" and trimming pin



SC/WC12 Input Specifications

Specifications						Мо	del					
OBR**SC/WC12 6WATTS/SINGLE/2 OUTPUT	OBR05	5SC12	OBR12	SC12	OBR15	5SC12	OBR24	SC12	OBR22	OBR22WC12		WC12
Input Characteristic												
Input Voltage DC[V]	5	5	12	2	1:	5	24	1	5	12	5	12
Input Range DC[V]		9-18V										
Inrush Current [A]						Not sp	ecified					
Input Range												
at no load [mA](typical)	50	51	68	60	75	62	88	67	106	93	116	98
at full load[mA](typical)	1351	578	1600	676	1548	654	1590	668	1642	697	1568	662
Line Back Noise [mVp-p](typical)	300	150	300	150	300	150	300	150	300	150	300	150
Efficiency [%] (typical) *1	7:	5	78	3	7:	9	8′	1	7	'8	79	9



SC/WC12 Output Specifications

Specifications	Model									
OBR**SC/WC12	OBR05SC12	OBR12SC12	OBR15SC12	OBR24SC12	OPPO	2WC12	OPPO	3WC12		
6WATTS/SINGLE/2 OUTPUT	OBR055C12	OBR 125C 12	OBR155C12	UBR245U12	UBR2	200012	UBR2	300012		
Output Voltage [V]	5	12	15	24	+12	-12	+15	-15		
Output Current [A]	1	0.50	0.40	0.26	0.025	5-0.25	0.020	0-0.20		
Voltage Tolerance [mV](maximum) *2	100	240	300	480	240	240	300	300		
Ripple and Noise [mVp-p](maximum) *3			10	00						
Regulation										
a.Static Line Regulation [mV](maximum)	25	60	75	120	60	60	75	75		
b.Dynamic Line Regulation +/-[mV](maximum) *4	200	360	450	720	480	480	600	600		
c.Static Load Regulation [mV](maximum) *5	25	60	75	120	±1000	±1000	±1200	±1200		
[mV](maximum) *6					±480	±480	±600	±600		
[mV](maximum) *7					±60	±60	±75	±75		
d.Temperature Coefficient *8			0.03%/°C	(maximum)						
e.Drift[mV](maximum) *9	40	75	90	135	75	75	90	90		
f.Dynamic Load Regulation [mV](maximum) *10	150	360	450	720	360	360	450	450		
g.Recovery Time *4,*10			20mS(typical)						
Rise up time			20mS(typical) at	rated input/output						
Hold up time	Not specified									
Functions										
Overcurrent Protection	Foldbad	ck/Current Limiting	with automatic rec	overy at discontinu	uous shoi	t circuit c	onditions			
Overvoltage Protection			Not av	ailable						
Remote Sence			Not av	/ailable						
Trimming of output voltage[mV] *11	+250	+250	+350	+650						
[mV] *12	-250	-900	-1600	-4000						
Input Fuse	200			alled						
Environmental			IIISI	alleu						
Operating Temperature			-20 to	71°C						
(derating)		3.5%	/°C (50°Cto 71°C)(71°C)					
Operating Humidity		0.070		on-condensing)	710)					
Storage Temperature			•	+85°C						
Storage Humidity				non-condensing)						
Withstanding Voltage	Primary-Secondar	y AC500V for 1r		ion-condensing)						
Isolation Resistance	Primary-Secondar) by DC500V insu	lation tester						
Capacitance(input-output) [pF](typical)	iai y occoridai	, 0011122(1111111111111111		200						
Vibration	5 10Hz:10mm do::b	olo amplitudo 10 EELI-			utoe cook a	along V V 7	7 2200/202	oporatina)		
Shock	5-10Hz:10mm double amplitude,10-55Hz:2G,19.6m/s²,20minutes' period for 60minutes each along X,Y,Z axes(non-operating) 294m/s²									
Cooling	Convection									
Weight (typical)				d type:12g						
Conditions:			open boar	jpo. 129						

- *1 at 25°C and rated input/output
- *2 OBR**WC0512 satisfies the above-mentioned specifications at the same load conditions on both outputs
- *3 measured by a probe at the output connector at a 0 to 100MHz bandwidth
- *4 when input voltage changed from 4.5V to 16V rapidly at rated input
- *5 when output current changed from 0mA to rated current keeping the current of other output below minimum rated current at rated input
- *6 when output current changed from minimum rated current to rated current keeping the current of other output above minimum rated current at rated input
- *7 output current of both outputs changed from 0mA to rated current identically at rated input
- *8 at -20 to +71°C
- *9 for 7hour period after 1hour warm-up at 25°C and rated input/output
- *10 when output current changed rapidly between 25% and 75% of rated current at rated input
- *11 to reduce output voltage,put a resistor between pin"0" and trimming pin
- *12 to increase output voltage,put a resistor between pin"+" and trimming pin



	TA-U				Input	Speci	fication	S				
Specifications		Model										
OBR**SC/WC1224 6WATTS/SINGLE/2 OUTPUT	OBR05	SC1224	OBR12	2SC1224	OBR15	15SC1224 OBR24SC1224			OBR2	2WC1224	OBR23V	VC1224
Input Characteristic												
Input Voltage DC[V]	12	24	12	24	12	24	12	24	12	24	12	24
Input Range DC[V]						8-3	32					
Inrush Current [A]						Not spe	ecified					
Input Range												
at no load [mA](typical)	26	30	28	33	28	35	33	34	38	38	38	38
at full load[mA](typical)	520	270	602	312	595	308	611	313	617	312	609	308
Line Back Noise [mVp-p](typical)	300	150	300	150	300	150	300	150	300	150	300	150
Efficiency [%] (typical) *1	80	77	83	80	84	81	85	83	81	80	82	81



SC/WC1224 Output Specification

OBR**SC/WC1224	1	22 i Outpu	t Specificati	1			1				
6WATTS/SINGLE/2 OUTPUT	OBR05SC1224	OBR12SC1224	OBR15SC1224	OBR24SC1224	OBR2	2WC1224	OBR23	WC1224			
Output Voltage [V]	5	12	15	24	+12	-12	+15	-15			
Output Current [A]	1	0.50	0.40	0.26		25-0.25	-	20-0.20			
Voltage Tolerance +/-[mV](maximum) *2	100	240	300	480	240	240	300	300			
Ripple and Noise [mVp-p](maximum) *3	100	210		00	210	210	300	300			
Regulation			1	00							
a.Static Line Regulation [mV](maximum)	25	60	75	120	60	60	75	75			
b.Dynamic Line Regulation +/-[mV](maximum) *4	200	200	200	200	200	200	200	200			
c.Static Load Regulation [mV](maximum) *5	25	60	75	120	±1000	±1000	±1000	±1000			
[mV](maximum) *6		**	, ,		±480	±480	±600	±600			
[mV](maximum) *7					±60	±60	±75	±75			
d.Temperature Coefficient *8			0.03%/°C	(maximum)							
e.Drift[mV](maximum) *9	40	75	90	135	75	75	90	90			
f.Dynamic Load Regulation [mV](typical) *10	150	360	450	720	360	360	450	450			
g.Recovery Time *4, *10			20mS((typical)							
Rise up time		20mS(typical) at rated input/output									
Hold up time	Not specified										
Functions											
Overcurrent Protection		10 · * · · · · ·									
O to B to d	Foldback	Current Limiting	with automatic re-	covery at discont	inuous	short circui	t conditi	ions			
Overvoltage Protection			Not a	vailable							
Remote Sence				vailable							
Trimming of output voltage[mV] *11	+250	+250	+350	+650							
[mV] *12	-250	-900	-1600	-4000							
Input Fuse	230	700									
•			Ins	talled							
Environmental											
Operating Temperature				o 71 °C							
(derating) *13		3.5%/	°C(50°C to 71°C)	•	>=71°C	2)					
Operating Humidity			,	on-condensing)							
Storage Temperature				+85°C							
Storage Humidity				non-condensing))						
Withstanding Voltage	Primary-Second	,	for 1 minute								
Isolation Resistance	Primary-Secondary 50MW(minimum) by DC500V insulation tester										
Capacitance(input-output) [pF](typical)	2200										
Vibration	5-10Hz:10	mm double amplitude,10	0-55Hz:19.6m/s 2,20minute		each along	X,Y,Z axes(no	n-operating	()			
Shock			294	4m/s^2			-				
Cooling Weight (typical)	Convection open board type:12g										

- *1 at 25 $^{o}\!C$ and rated input/output
- *2 OBR**WC1224 satisfies the above-mentioned specifications at the same load conditions on both outputs
- *3 measured by a probe at the output connector at a 0 to 100MHz bandwidth
- *4 when input voltage changed from 8V to 32V rapidly at rated input
- *5 when output current changed from 0mA to rated current keeping the current of other output below minimum rated current at rated input
- *6 when output current changed from minimum rated current to rated current keeping the current of other output above minimum rated current at rated input
- *7 output current of both outputs changed from 0mA to rated current identically at rated input
- *8 at -20 to +71 °C
- *9 for 7hour period after 1hour warm-up at 25°C and rated input/output
- *10 when output current changed from 25% of rated current to 75% rapidly at rated input
- *11 to reduce output voltage, put a resistor between pin"0" and trimming pin
- *12 to increase output voltage,put a resistor between pin"+" and trimming pin



Specifications		Model										
OBR**SC/WC2448 6WATTS/SINGLE/2 OUTPUT	OBR05S	OBR05SC2448 OBR12SC2448 OBR15SC2448 OBR24SC244		SC2448	OBR22	WC2448	OBR23\	WC2448				
Input Characteristic												
Input Voltage DC[V]	24	48	24	48	24	48	24	48	24	48	24	48
Input Range DC[V]		18-72										
Inrush Current [A]						Not sp	ecified					
Inrush Current [A]												
at no load [mA](typical)	11	13	12	14	12	14	14	16	18	18	18	18
at full load[mA](typical)	267	137	305	154	297	153	306	155	308	156	304	154
Line Back Noise [mVp-p] (typical)	350	200	500	200	500	200	500	200	500	200	500	200
Efficiency [%] (typical) *1	78	76	82	81	84	82	85	84	81	80	82	81



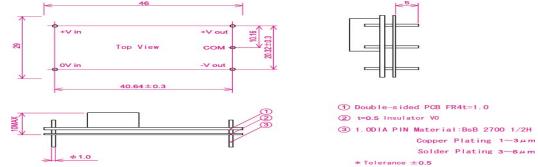
SC/WC2448 Output Specification

Specifications	Model										
OBR**SC/WC2448 6WATTS/SINGLE/2 OUTPUT	OBR05SC2448	OBR12SC2448	OBR15SC2448	OBR24SC2448	OBR22\	WC2448	OBR23	WC2448			
Output Voltage [V]	5	12	15	24	+12	-12	+15	-15			
Output Current [A]	1	0.50	0.40	0.26	0.025	5-0.25	0.02	0-0.20			
Voltage Tolerance +/-[mV](maximum) *2	100	240	300	480	240	240	300	300			
Ripple and Noise [mVp-p](maximum) *3			10	00							
Regulation											
a.Static Line Regulation [mV](maximum)	25	60	75	120	60	60	75	75			
b.Dynamic Line Regulation +/-[mV](maximum) *4	250	200	200	200	200	200	200	200			
c.Static Load Regulation [mV](maximum) *5	25	60	75	120	±1500	±1500	±2000	±2000			
[mV](maximum) *6					±480	±480	±600	±600			
[mV](maximum) *7					±60	±60	±75	±75			
d.Temperature Coefficient *8			0.03%/° ¢	maximum)			-				
e.Drift[mV](maximum) *9	40	75	90	135	75	75	90	90			
f.Dynamic Load Regulation [mV](maximum) *10	250	200	200	500	300	300	300	300			
g.Recovery Time *10			10mS(typical)							
Rise up time			15mS(typical) at	rated input/output							
Hold up time	Not specified										
Functions											
Overcurrent Protection	Foldba	Foldback/Current Limiting with automatic recovery at discontinuous short circuit conditions									
Overvoltage Protection			Not av	ailable							
Remote Sence			Not av	ailable							
Trimming of output voltage[mV] *11	+250	+250	+350	+650							
[mV] *12	-250	-900	-1600	-4000							
Input Fuse			Inst	alled							
Environmental											
Operating Temperature			-20 t	o 71°C							
(derating) *13		3.	5%/°Q50°Cto 71°C) (out of warranty <i>≧</i> 7	1°C)						
Operating Humidity			20-90%/RH(no	n-condensing)	-						
Storage Temperature			-20 to	+85°C							
Storage Humidity			20 to 90%/RH(r	non-condensing)							
Withstanding Voltage		Pı	imary-Secondary	AC500V for 1min	ute						
Isolation Resistance		Primary-Seco	ndary 50MΩ(minin	num) by DC500V i	nsulation	tester					
Capacitance(input-output) [pF](typical)			22	00							
Vibration	5-10Hz:10mm double amplitude,10-55Hz:19.6m/s²,20minutes' period for 60minutes each along X,Y,Z axes(non-operating)										
Shock		,		m/s ²		<u> </u>	`	. 5/			
Cooling			Conv	ection							
Weight (typical)			open boar	d type:12g							

- *1 at 25°Cand rated input/output
- *2 OBR**WC2448 satisfies the above-mentioned specifications at the same load conditions on both outputs
- *3 measured by a probe at the output connector at a 0 to 100MHz bandwidth
- *4 when input voltage changed from 18V to 72V rapidly at rated input
- *5 when output current changed from 0mA to rated current keeping the current of other output below minimum rated current at rated input
- *6 when output current changed from minimum rated current to rated current keeping the current of other output above minimum rated current at rated input
- *7 output current of both outputs changed from 0mA to rated current identically at rated input
- *8 at -20 to +71°C
- *9 for 7hour period after 1hour warm-up at 25°Cand rated input/output
- $^{\star}10$ when output current changed rapidly between 25% and 75% of rated current at rated input
- *11 to reduce output voltage, put a resistor between pin"+" and trimming pin
- *12 to increase output voltage,put a resistor between pin"0" and trimming pin
- *13 out of warranty ≧50°Cat input voltage from 63V to 72V

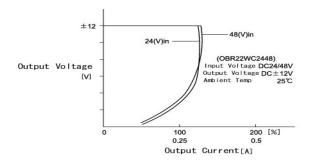


DIMENSION DIAGRAM



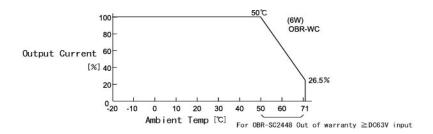
Dimension Diagram OBR-WC2448

OCP CURVE





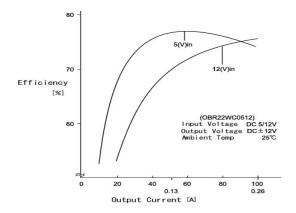
DERATING CURVE



Derating Curve OBR-SC-6W



EFFICIENCY CURVE



Efficiency Curve OBR22WC0512

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