

Power Supplies

DR-UGB Series

DC Input
Single Output, Long Life

FEATURES

- Input surge current prevention(built-in soft-start circuit).
- Remote sensing.
- Remote ON-OFF(floating).
- These low noise power supplies are CISPR standard compliant.

PART NUMBERS AND RATINGS

Output voltage (V)	30W type		50W type		75W type	
	Current(A)	Part No.	Current(A)	Part No.	Current(A)	Part No.
5	6	DR05-6R0UGB	10	DR05-10RUGB	15	DR05-15RUGB
9	3.3	DR09-3R3UGB	6	DR09-6R0UGB	8	DR09-8R0UGB
12	2.5	DR12-2R5UGB	5	DR12-5R0UGB	6.3	DR12-6R3UGB
15	2	DR15-2R0UGB	4	DR15-4R0UGB	5	DR15-5R0UGB
24	1.3	DR24-1R3UGB	2.5	DR24-2R5UGB	3.2	DR24-3R2UGB
48	—		1.3	DR48-1R3UGB	1.6	DR48-1R6UGB

Output voltage (V)	100W type		150W type		300W type	
	Current(A)	Part No.	Current(A)	Part No.	Current(A)	Part No.
5	20	DR05-20RUGB	30	DR05-30RUGB	60	DR05-60RUGB
9	11	DR09-11RUGB	16	DR09-16RUGB	32	DR09-32RUGB
12	8.5	DR12-8R5UGB	12	DR12-12RUGB	27	DR12-27RUGB
15	7	DR15-7R0UGB	10	DR15-10RUGB	23	DR15-23RUGB
24	4.5	DR24-4R5UGB	6	DR24-6R0UGB	16	DR24-16RUGB
48	2.2	DR48-2R2UGB	3	DR48-3R0UGB	6	DR48-6R0UGB



Power Supplies

DR-UGB Series

DC Input

Single Output, Long Life

SPECIFICATIONS

30W TYPE

Part No.		DR05-6R0UGB	DR09-3R3UGB	DR12-2R5UGB	DR15-2R0UGB	DR24-1R3UGB
Output voltage, current*		5V • 6A	9V • 3.3A	12V • 2.5A	15V • 2A	24V • 1.3A
Maximum output power	W	33	32.7	33	33	34.4
Input requirements						
Input voltage E _{dc}	V	88 to 143[Rating: 110]				
Input current	A	0.7max.[At maximum output power]				
Fuse rating	A	3.15[Internal]				
Surge current	A	15max.[25°C, input and output ratings, 1st surge current, reset after roughly 5s min.]				
Leakage current	mA	0.5max.(0.3typ.)				
Efficiency	%	75typ.[25°C, input and output ratings]				
Output characteristics						
Output voltage	V	5	9	12	15	24
Voltage variable range	V	4.25 to 5.5	7.2 to 10	9.5 to 13.5	12 to 16.5	19 to 26.5
Maximum output current*	A	6	3.3	2.5	2	1.3
Overvoltage threshold	V	5.8 to 6.9	10.5 to 12.5	13.7 to 15.7	17 to 19	27 to 30.5
Overcurrent threshold	A	6.6 to 7.8	3.7 to 4.3	2.8 to 3.3	2.2 to 2.6	1.5 to 1.8
Voltage stability	Input variation	%	0.8max.(0.5typ.)[Within the input voltage range]			
	Load variation	%	0.8max.(0.4typ.)[10 to 100% load]			
	Temperature variation	%	1.2max.(0.4typ.)[0 to +50°C]			
	Drift	%	0.5max.[25°C, input and output ratings, after input voltage ON for 30min to 8h]			
	Dynamic load	%/ms	±4max./1max.[50 to 100% sudden load change tr, tf ≥ 5μs]			
Ripple E _{p-p}	mV	50max.	50max.	80max.	80max.	100max.
Ripple noise E _{p-p}	mV	75max.	95max.	110max.	125max.	170max.
Start up time	ms	100max.(50typ.)				
Hold up time	ms	10min.(20typ.)				
Accessory equipment						
Operation indicator		None				
Overvoltage protection		Voltage shielding type, recovers upon reset(interval approx. 5s), set value fixed.				
Overcurrent protection		Fixed current and voltage threshold type, automatic recovery, set value fixed.				
Remote ON-OFF		Yes(Floating)				
Remote sensing		Yes				
Standards						
Safety standards		—				
Noise terminal voltage		CISPR standard compliant.				
Construction						
External dimensions H×W×L	mm	130×35×146				
Weight	g	650max.				
Mounting method		Can be attached to 4 sides.				
Case material		Aluminum(Phosphoric acid anodized surface)				

* Current rating(maximum output current) is determined for 0 to +50°C. Derating is required when used outside this temperature range.

Power Supplies

DR-UGB Series

DC Input

Single Output, Long Life

SPECIFICATIONS

50W TYPE

Part No.		DR05-10RUGB	DR09-6R0UGB	DR12-5R0UGB	DR15-4R0UGB	DR24-2R5UGB	DR48-1R3UGB
Output voltage, current*		5V • 10A	9V • 6A	12V • 5A	15V • 4A	24V • 2.5A	48V • 1.3A
Maximum output power	W	55	60	68	66	66	69
Input requirements							
Input voltage E _{dc}	V	88 to 143[Rating: 110]					
Input current	A	0.9max.(0.7typ.)[88V]					
Fuse rating	A	3.15[Internal]					
Surge current	A	12max.[110V, 1st surge current, reset after roughly 5s min.]					
Efficiency	%	81typ.	81typ.	83typ.	83typ.	85typ.	85typ.
Output characteristics							
Output voltage	V	5	9	12	15	24	48
Voltage variable range	V	4 to 5.5	7.2 to 10	9.5 to 13.5	12 to 16.5	19 to 26.5	38.4 to 53
Maximum output current*	A	10	6	5	4	2.5	1.3
Overvoltage threshold	V	6 to 6.5	10.5 to 11	14 to 14.5	17 to 17.5	27 to 27.5	55 to 57
Overcurrent threshold	A	11.5 to 12.5	6.9 to 7.5	5.7 to 6.3	4.6 to 5	2.8 to 3.2	1.5 to 1.7
Voltage stability	Input variation	%	0.8max.(0.5typ.)[Within the input voltage range]				
	Load variation	%	1max.(0.5typ.)[10 to 100% load]				
	Temperature variation	%	1.2max.(0.4typ.)[0 to +50°C]				
	Drift	%	0.5max.(0.1typ.)[25°C, input and output ratings, after input voltage ON for 30min to 8h]				
	Dynamic load	%/ms	±4max./1max.[50 to 100% sudden load change tr, tf ≥ 5μs]				
Ripple E _{p-p}	mV	50max.	50max.	80max.	80max.	100max.	100max.
Ripple noise E _{p-p}	mV	75max.	95max.	110max.	125max.	170max.	290max.
Start up time	ms	150max.(90typ.)[110V]					
Hold up time	ms	15min.(20typ.)[110V]					
Accessory equipment							
Operation indicator		None					
Overvoltage protection		Voltage shielding type, recovers upon reset(interval approx. 5s).					
Overcurrent protection		Fixed current and voltage threshold type, automatic recovery.					
Remote ON-OFF		Yes(Floating)					
Remote sensing		Yes					
Standards							
Safety standards		—					
Noise terminal voltage		CISPR standard compliant.					
Construction							
External dimensions H×W×L	mm	130×55×191					
Weight	kg	1.1max.					
Mounting method		Can be attached to 3 sides.					
Case material		Aluminum					

* Current rating(maximum output current) is determined for 0 to +50°C. Derating is required when used outside this temperature range.

Power Supplies

DR-UGB Series

DC Input

Single Output, Long Life

SPECIFICATIONS

75W TYPE

Part No.		DR05-15RUGB	DR09-8R0UGB	DR12-6R3UGB	DR15-5R0UGB	DR24-3R2UGB	DR48-1R6UGB
Output voltage, current*		5V • 15A	9V • 8A	12V • 6.3A	15V • 5A	24V • 3.2A	48V • 1.6A
Maximum output power	W	82.5	80	85	82.5	85	85
Input requirements							
Input voltage E _{dc}	V	88 to 143[Rating: 110]					
Input current	A	1.2max.(0.85typ.)[88V]					
Fuse rating	A	4[Internal]					
Surge current	A	12max.[110V, 1st surge current, reset after roughly 8s min.]					
Efficiency	%	81typ.	81typ.	83typ.	83typ.	86typ.	86typ.
Output characteristics							
Output voltage	V	5	9	12	15	24	48
Voltage variable range	V	4 to 5.5	7.2 to 10	9.5 to 13.5	12 to 16.5	19 to 26.5	38.4 to 53
Maximum output current*	A	15	8	6.3	5	3.2	1.6
Overvoltage threshold	V	6 to 6.5	10.5 to 11	14 to 14.5	17 to 17.5	27 to 27.5	55 to 57
Overcurrent threshold	A	17.2 to 18.8	9.2 to 10	7.2 to 7.9	5.7 to 6.3	3.6 to 4	1.8 to 2
Voltage stability	Input variation	%	0.8max.(0.5typ.)[Within the input voltage range]				Total variation 2max.(1.3typ.)
	Load variation	%	1max.(0.5typ.)[10 to 100% load]				
	Temperature variation	%	1.2max.(0.4typ.)[0 to +50°C]				
	Drift	%	0.5max.(0.1typ.)[25°C, input and output ratings, after input voltage ON for 30min to 8h]				
	Dynamic load	%/ms	±4max./1max.[50 to 100% sudden load change tr, tf ≥ 5μs]				
Ripple E _{p-p}	mV	50max.	50max.	80max.	80max.	100max.	100max.
Ripple noise E _{p-p}	mV	75max.	95max.	110max.	125max.	170max.	290max.
Start up time	ms	150max.(90typ.)[110V]					
Hold up time	ms	15min.(20typ.)[110V]					
Accessory equipment							
Operation indicator		None					
Overvoltage protection		Voltage shielding type, recovers upon reset(interval approx. 8s).					
Overcurrent protection		Fixed current and voltage threshold type, automatic recovery.					
Remote ON-OFF		Yes(Floating)					
Remote sensing		Yes					
Standards							
Safety standards		—					
Noise terminal voltage		CISPR standard compliant.					
Construction							
External dimensions H×W×L	mm	130×55×224					
Weight	kg	1.2max.					
Mounting method		Can be attached to 3 sides.					
Case material		Aluminum					

* Current rating(maximum output current) is determined for 0 to +50°C. Derating is required when used outside this temperature range.

Power Supplies

DR-UGB Series

DC Input

Single Output, Long Life

SPECIFICATIONS

100W TYPE

Part No.		DR05-20RUGB	DR09-11RUGB	DR12-8R5UGB	DR15-7R0UGB	DR24-4R5UGB	DR48-2R2UGB	
Output voltage, current*		5V • 20A	9V • 11A	12V • 8.5A	15V • 7A	24V • 4.5A	48V • 2.2A	
Maximum output power	W	110	110	115	116	119	117	
Input requirements								
Input voltage E _{dc}	V	88 to 143[Rating: 110]						
Input current	A	1.7max.(1.1typ.)[88V]						
Fuse rating	A	5[Internal]						
Surge current	A	12max.[110V, 1st surge current, reset after roughly 15s min.]						
Efficiency	%	81typ.	81typ.	83typ.	83typ.	86typ.	86typ.	
Output characteristics								
Output voltage	V	5	9	12	15	24	48	
Voltage variable range	V	4 to 5.5	7.2 to 10	9.5 to 13.5	12 to 16.5	19 to 26.5	38.4 to 53	
Maximum output current*	A	20	11	8.5	7	4.5	2.2	
Overvoltage threshold	V	6 to 6.5	10.5 to 11	14 to 14.5	17 to 17.5	27 to 27.5	55 to 57	
Overcurrent threshold	A	23 to 25	12.6 to 13.8	9.7 to 10.7	8 to 8.8	5.1 to 5.7	2.5 to 2.8	
Voltage stability	Input variation	%	0.8max.(0.5typ.)[Within the input voltage range]					Total variation 2max.(1.3typ.)
	Load variation	%	1max.(0.5typ.)[10 to 100% load]					
	Temperature variation	%	1.2max.(0.4typ.)[0 to +50°C]					
	Drift	%	0.5max.(0.1typ.)[25°C, input and output ratings, after input voltage ON for 30min to 8h]					
	Dynamic load	%/ms	±4max./1max.[50 to 100% sudden load change tr, tf ≥ 5μs]					
Ripple E _{p-p}	mV	50max.	50max.	80max.	80max.	100max.	100max.	
Ripple noise E _{p-p}	mV	75max.	95max.	110max.	125max.	170max.	290max.	
Start up time	ms	150max.(90typ.)[110V]						
Hold up time	ms	15min.(20typ.)[110V]						
Accessory equipment								
Operation indicator		None						
Overvoltage protection		Voltage shielding type, recovers upon reset(interval approx. 15s).						
Overcurrent protection		Fixed current and voltage threshold type, automatic recovery.						
Remote ON-OFF		Yes(Floating)						
Remote sensing		Yes						
Standards								
Safety standards		—						
Noise terminal voltage		CISPR standard compliant.						
Construction								
External dimensions	H×W×L mm	130×83×224						
Weight	kg	1.8max.						
Mounting method		Can be attached to 3 sides.						
Case material		Aluminum						

* Current rating(maximum output current) is determined for 0 to +50°C. Derating is required when used outside this temperature range.

Power Supplies

DR-UGB Series

DC Input

Single Output, Long Life

SPECIFICATIONS

150W TYPE

Part No.		DR05-30RUGB	DR09-16RUGB	DR12-12RUGB	DR15-10RUGB	DR24-6R0UGB	DR48-3R0UGB
Output voltage, current*		5V • 30A	9V • 16A	12V • 12A	15V • 10A	24V • 6A	48V • 3A
Maximum output power	W	165	160	162	165	159	159
Input requirements							
Input voltage E _{dc}	V	88 to 143[Rating: 110]					
Input current	A	2.7max.(1.6typ.)[88V]					
Fuse rating	A	6[Internal]					
Surge current	A	15max.[110V, 1st surge current, reset after roughly 20s min.]					
Efficiency	%	81typ.	81typ.	83typ.	83typ.	86typ.	86typ.
Output characteristics							
Output voltage	V	5	9	12	15	24	48
Voltage variable range	V	4 to 5.5	7.2 to 10	9.5 to 13.5	12 to 16.5	19 to 26.5	38.4 to 53
Maximum output current*	A	30	16	12	10	6	3
Overvoltage threshold	V	6 to 6.5	10.5 to 11	14 to 14.5	17 to 17.5	27 to 27.5	55 to 57
Overcurrent threshold	A	34.6 to 37.5	18 to 20	13.8 to 15	11.5 to 12.5	6.9 to 7.5	3.4 to 3.8
Voltage stability	Input variation	%	0.8max.(0.5typ.)[Within the input voltage range]				Total variation 2max.(1.3typ.)
	Load variation	%	1max.(0.5typ.)[10 to 100% load]				
	Temperature variation	%	1.2max.(0.4typ.)[0 to +50°C]				
	Drift	%	0.5max.(0.1typ.)[25°C, input and output ratings, after input voltage ON for 30min to 8h]				
	Dynamic load	%/ms	±4max./1max.[50 to 100% sudden load change tr, tf ≥ 5μs]				
Ripple E _{p-p}	mV	50max.	50max.	80max.	80max.	100max.	100max.
Ripple noise E _{p-p}	mV	75max.	95max.	110max.	125max.	170max.	290max.
Start up time	ms	150max.(90typ.)[110V]					
Hold up time	ms	15min.(20typ.)[110V]					
Accessory equipment							
Operation indicator		None					
Overvoltage protection		Voltage shielding type, recovers upon reset(interval approx. 20s).					
Overcurrent protection		Fixed current and voltage threshold type, automatic recovery.					
Remote ON-OFF		Yes(Floating)					
Remote sensing		Yes					
Standards							
Safety standards		—					
Noise terminal voltage		CISPR standard compliant.					
Construction							
External dimensions H×W×L	mm	130×103×224					
Weight	kg	2.3max.					
Mounting method		Can be attached to 3 sides.					
Case material		Aluminum					

* Current rating(maximum output current) is determined for 0 to +50°C. Derating is required when used outside this temperature range.

Power Supplies

DR-UGB Series

DC Input

Single Output, Long Life

SPECIFICATIONS

300W TYPE

Part No.		DR05-60RUGB	DR09-32RUGB	DR12-27RUGB	DR15-23RUGB	DR24-16RUGB	DR48-6R0UGB
Output voltage, current*		5V • 60A	9V • 32A	12V • 27A	15V • 23A	24V • 16A	48V • 6A
Maximum output power	W	330	320	365	380	384	318
Input requirements							
Input voltage E _{dc}	V	88 to 143[Rating:110]					
Input current	A	7max.[At maximum output power]					
Fuse rating	A	15[Internal]					
Surge current	A	25max.[25°C, input and output ratings, reset after roughly 40s min.]					
Leakage current	mA	0.5max.(0.3typ.)[25°C, input and output ratings]					
Efficiency	%	80typ.[25°C, input and output ratings]					
Output characteristics							
Output voltage	V	5	9	12	15	24	48
Voltage variable range	V	4 to 5.5	7.2 to 10	9.5 to 13.5	12 to 16.5	19 to 26.5	38.4 to 53
Maximum output current*	A	60	32	27	23	16	6
Overvoltage threshold	V	6 to 6.5	10.5 to 11	14 to 14.5	17 to 17.5	27 to 27.5	55 to 57
Overcurrent threshold	A	66 to 72	35.5 to 41	30 to 34	25 to 29	17 to 18	6.6 to 7.4
Voltage stability	Input variation	%	0.8max.(0.5typ.)[Within the input voltage range]				Total variation 2max.(1.3typ.)
	Load variation	%	1max.(0.5typ.)[10 to 100% load]				
	Temperature variation	%	1.2max.(0.4typ.)[0 to +50°C]				
	Drift	%	0.5max.[25°C, input and output ratings, after input voltage ON for 30min to 8h]				
	Dynamic load	%/ms	±4/1max.[50 to 100% sudden load change tr, tf ≥ 5μs]				
Ripple E _{p-p}	mV	50max.	50max.	80max.	80max.	100max.	100max.
Ripple noise E _{p-p}	mV	75max.	95max.	110max.	125max.	170max.	290max.
Start up time	ms	150max.(90typ.)					500max.(250typ.)
Hold up time	ms	10min.(20typ.)					
Accessory equipment							
Operation indicator		None					
Overvoltage protection		Voltage shielding type, recovers upon reset(interval approx. 40s).					
Overcurrent protection		Fixed current and voltage threshold type, automatic recovery.					
Remote ON-OFF		Yes(Floating)					
Remote sensing		Yes					
Standards							
Safety standards		—					
Noise terminal voltage		CISPR standard compliant.					
Construction							
External dimensions H×W×L	mm	130×153×224					
Weight	kg	3.8max.					
Mounting method		Can be attached to 4 sides.					
Case material		Aluminum(Phosphoric acid anodized surface)					

* Current rating(maximum output current) is determined for 0 to +50°C. Derating is required when used outside this temperature range.

Power Supplies

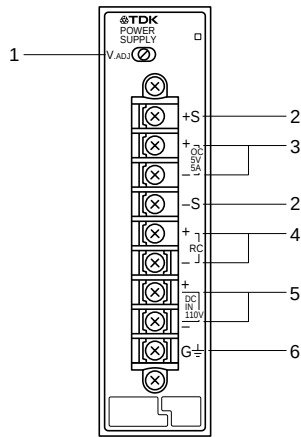
DR-UGB Series

DC Input

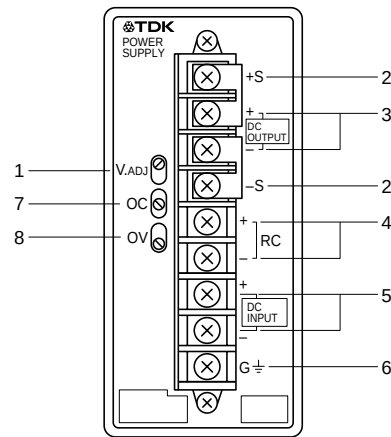
Single Output, Long Life

TERMINAL DESIGNATIONS AND FUNCTIONS

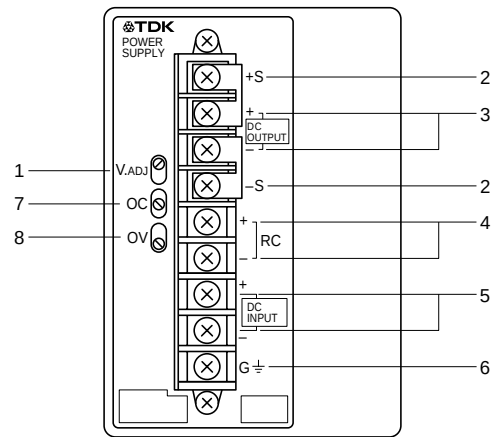
30W TYPE



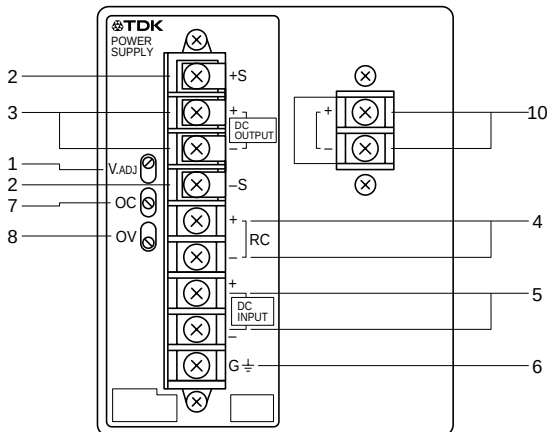
50W, 75W TYPE



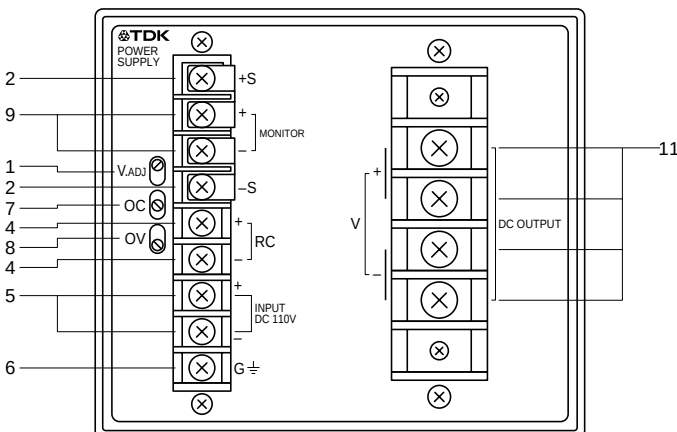
100W TYPE



150W TYPE



300W TYPE



Terminal No. 1: Output voltage adjustment trim(V.ADJ)

Adjusts output voltage.

Terminal No. 2: Remote sensing terminals(+S, -S)

These are normally jumpered. When controlling voltage to the load, please remove jumper, and wire these.

Terminal No. 3: DC output terminals(+, -)

Connect to load.

Terminal No. 4: Remote ON-OFF terminals(+RC, -RC)

Output is turned ON-OFF by disconnecting-connecting the RC terminals(output ON when open). RC terminals are floating.

Terminal No. 5: DC input terminals(Input DC.110V, +, -)

Connect to DC.110V single phase power supply.

Terminal No. 6: Frame ground terminal(G)

Connect to earth ground. This is connected to the case.

Terminal No. 7: Overcurrent adjustment trim(OC)

This is adjusted at the factory prior to shipment.

Terminal No. 8: Overvoltage adjustment trim(OV)

This is adjusted at the factory prior to shipment.

Terminal No. 9: Monitor terminal(MONITOR, +, -)

This terminal is used to monitor DC current output.

Load lines should not be connected to these monitor terminals. These monitor terminals should be jumpered when the remote monitoring feature is not in use.

Terminal No. 10: DC output terminals (DC OUTPUT, +, -)

150W type

Connect to load. Maximum permissible current for a single terminal is 25A. Use of terminal pairs is recommended.

Terminal No. 11: DC output terminals (DC OUTPUT, +, -)

300W type

Connect to load. Maximum permissible current for a single terminal is 40A. Use of terminal pairs is recommended.

SUNSTAR 商斯达实业集团是集研发、生产、工程、销售、代理经销、技术咨询、信息服务等为一体的高科技企业，是专业高科技电子产品生产厂家，是具有 10 多年历史的专业电子元器件供应商，是中国最早和最大的仓储式连锁规模经营大型综合电子零部件代理分销商之一，是一家专业代理和分销世界各大品牌 IC 芯片和电子元器件的连锁经营综合性国际公司，专业经营进口、国产名厂名牌电子元件，型号、种类齐全。在香港、北京、深圳、上海、西安、成都等全国主要电子市场设有直属分公司和产品展示展销窗口门市部专卖店及代理分销商，已在全国范围内建成强大统一的供货和代理分销网络。我们专业代理经销、开发生产电子元器件、集成电路、传感器、微波光电元器件、工控机/DOC/DOM 电子盘、专用电路、单片机开发、MCU/DSP/ARM/FPGA 软件硬件、二极管、三极管、模块等，是您可靠的一站式现货配套供应商、方案提供商、部件功能模块开发配套商。商斯达实业公司拥有庞大的资料库，有数位毕业于著名高校——有中国电子工业摇篮之称的西安电子科技大学（西军电）并长期从事国防尖端科技研究的高级工程师为您精挑细选、量身订做各种高科技电子元器件，并解决各种技术问题。

微波光电部专业代理经销高频、微波、光纤、光电元器件、组件、部件、模块、整机；电磁兼容元器件、材料、设备；微波 CAD、EDA 软件、开发测试仿真工具；微波、光纤仪器仪表。欢迎国外高科技微波、光纤厂商将优秀产品介绍到中国、共同开拓市场。长期大量现货专业批发高频、微波、卫星、光纤、电视、CATV 器件：晶振、VCO、连接器、PIN 开关、变容二极管、开关二极管、低噪晶体管、功率电阻及电容、放大器、功率管、MMIC、混频器、耦合器、功分器、振荡器、合成器、衰减器、滤波器、隔离器、环行器、移相器、调制解调器；光电子器件和组件：红外发射管、红外接收管、光电开关、光敏管、发光二极管和发光二极管组件、半导体激光二极管和激光器组件、光电探测器和光接收组件、光发射接收模块、光纤激光器和光放大器、光调制器、光开关、DWDM 用光发射和接收器件、用户接入系统光收发器件与模块、光纤连接器、光纤跳线/尾纤、光衰减器、光纤适配器、光隔离器、光耦合器、光环行器、光复用器/转换器；无线收发芯片和模组、蓝牙芯片和模组。

更多产品请看本公司产品专用销售网站：

商斯达微波光电产品网：[HTTP://www.rfoe.net/](http://www.rfoe.net/)

商斯达中国传感器科技信息网：<http://www.sensor-ic.com/>

商斯达工控安防网：<http://www.pc-ps.net/>

商斯达电子元器件网：<http://www.sunstare.com/>

商斯达消费电子产品网：<http://www.icasic.com/>

商斯达实业科技产品网：<http://www.sunstars.cn/> 射频微波光电元器件销售热线：

地址：深圳市福田区福华路福庆街鸿图大厦 1602 室

电话：0755-83396822 83397033 83398585 82884100

传真：0755-83376182 (0) 13823648918 MSN: SUNS8888@hotmail.com

邮编：518033 E-mail:szss20@163.com QQ: 195847376

深圳赛格展销部：深圳华强北路赛格电子市场 2583 号 电话：0755-83665529 25059422

技术支持：0755-83394033 13501568376

欢迎索取免费详细资料、设计指南和光盘；产品凡多，未能尽录，欢迎来电查询。

北京分公司：北京海淀区知春路 132 号中发电子大厦 3097 号

TEL: 010-81159046 82615020 13501189838 FAX: 010-62543996

上海分公司：上海市北京东路 668 号上海赛格电子市场 D125 号

TEL: 021-28311762 56703037 13701955389 FAX: 021-56703037

西安分公司：西安高新开发区 20 所(中国电子科技集团导航技术研究所)

西安劳动南路 88 号电子商城二楼 D23 号

TEL: 029-81022619 13072977981 FAX:029-88789382