

Current Sensing Resistors 检流电阻/分流器

Fuses 保险丝/熔断器

SMD Resettable Fuses 可恢复保险丝

TVS Diodes 瞬态浪涌抑制器

ESD protections 静电保护器

LED protector LED保护器

Thyristor Surge Suppressors 半导体放电管

Gas Discharge Tubes 气体放电管

PROSEMI Products

Product Selection Guide
Electronics Circuit Protection



微信公众号

普森美微电子技术(苏州)有限公司

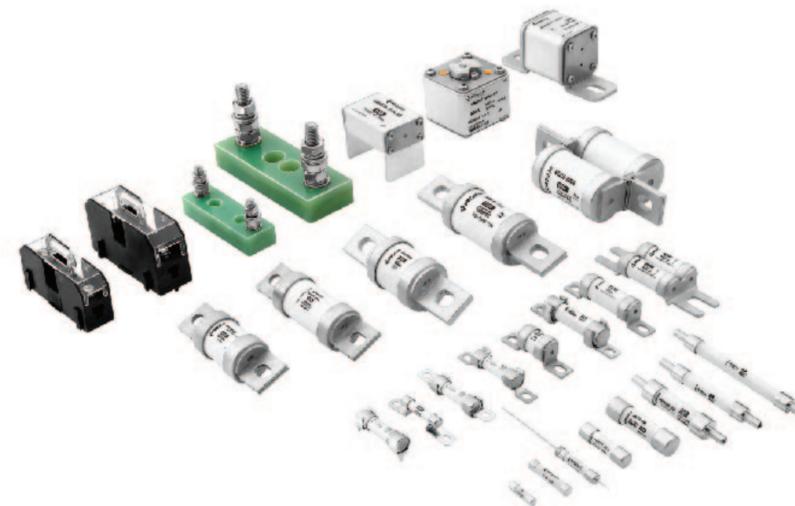
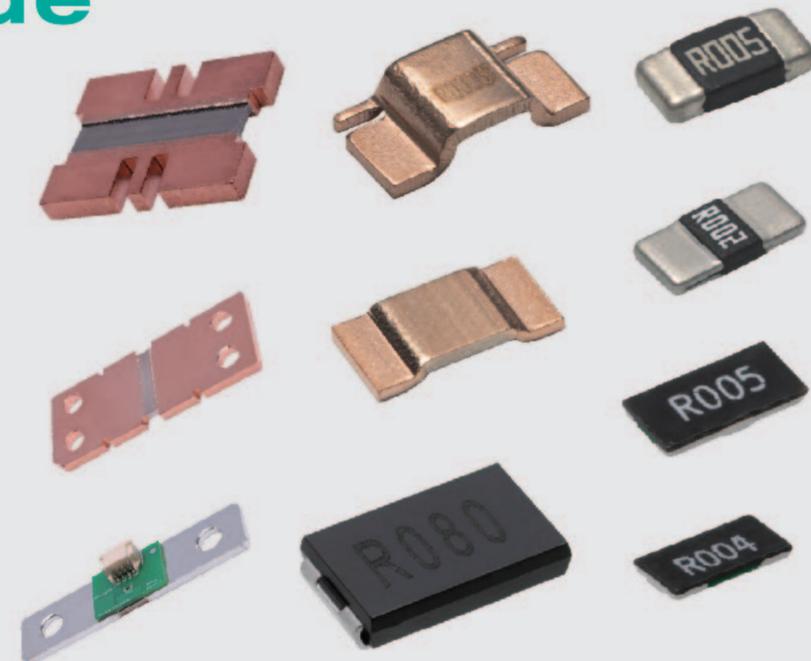
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Product Selection Guide

A guide to select PROSEMI circuit protection products for electronic applications



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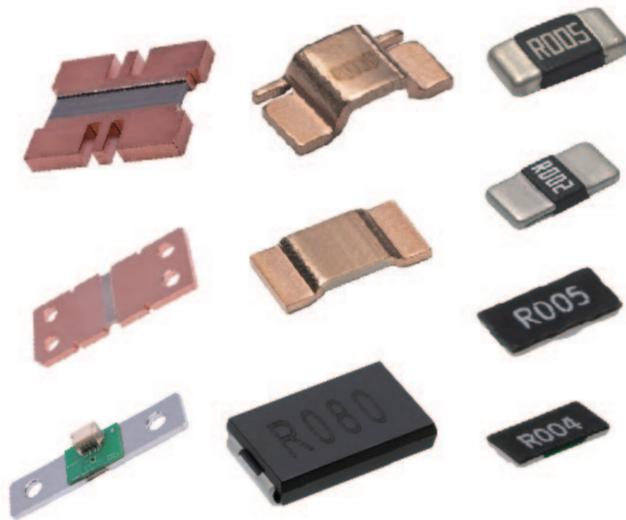
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Current Sensing Resistors

Current Sensing Resistors(CSR) aid precision measurement and high-current applications. A wide range of precision shunts, designed for use with kilowatt-hour meters and other high-current applications where a high level of accuracy is required, is now available from PROSEMI.

Metallic Material
Excellent long term stability



Features

- Heavy copper connectors
- Excellent long-term stability
- Halogen free, lead free and RoHS compliant
- Stabilized materials allow for high power rating
- Low thermal EMF
- Metallic Material
- Low TCR (Temperature Coefficient of Resistor)
- Low inductance
- AEC-Q200 qualified available

Applications

- Linear power supplies
- Current sensor and voltage division
- Pulse applications including switching
- Power amplifiers



Electrical Characteristics

Category	Series	Package	Resistance Value (mΩ)	Power Rating (W)	Tolerance (%)	TCR (PPM/°C)
Metal Alloy	(A)LMJ08	0805	1~25	0.5	1、2、5	±50
	(A)LMJ12	1206	1~100	1	0.5、1、2、5	±50
	(A)LMJ20	2010	5~10	1.5	0.5、1、2、5	±50
	(A)LMJ20	2010	1~100	1~1.5	0.5、1、2、5	±50
	(A)LMJ25	2512	0.5~0.75	2~3	0.5、1、2、5	±50
	(A)LMJ25	2512	1~10	2	0.5、1、2、5	±50
	(A)LMP25	2512	1~500	2~3	0.5、1、2、5	±50
	(A)LMN25	2512	1~100	2~3	0.5、1、2、5	±50
	(A)PMS45	4527	2~120	5	1、2、5	±75~110
	(A)LMR2725	2725	0.2~3	4	1、2、5	±75~200
	(A)LMR2728	2728	5~50	4	1、2、5	±75
	LMA2725	2725	0.2~3	4	1、2、5	±75~200
	LMA2728	2728	4~450	4	1、2、5	±75
	(A)LMR28	2817	1~100	4~5	0.5、1、2、5	±50~75
	LMJ28	2817	1~100	7	0.5、1、5	±75~200
	(A)LMR45	4527	1~200	4~5	0.5、1、2、5	±50~75

- Power rating at 70°C.
- The formula for calculating the rated voltage: $V = \sqrt{P \cdot R}$
- (A):AEC-Q200 compliant

Current Sensing Resistors

Electrical Characteristics

Category	Series	Package	Resistance Value (mΩ)	Power Rating (W)	Tolerance (%)	TCR (PPM/°C)
Shunt	(A)PSR25	2512	0.3~4	2~3	1、2、5	±75~250
	(A)PSR39	3921	0.3~4	5~7	1、2、5	±50~75
	(A)PSRN39	3921	0.2~5	5~7	1、2、5	±50~75
	(A)PSRP25	2512	0.2~5	4~6	0.5、1、2、5	±75~250
	(A)PSRP39	3921	0.2~5	5~12	0.5、1、2、5	±50~75
	(A)PSRP59	5930	0.1~5	7~15	0.5、1、2、5	±75~250
	(A)SRC25	2512	0.2~5	3~6	1、2、5	±70~175
	(A)SRC39	3920	0.2~5	5~12	1、2、5	±50~200
	(A)SRC40	4026	0.3~3	5	1、2、5	±50~75
	(A)SRC59	5930	0.1~3	7~15	1、2、5	±50~200
	PSS	1625	0.1	200A	1	±20
	PSS	2025	0.1、0.3	150A、120A	1	±25
	PSS	4320	1~25	5	1、2、5	±40~240
	PHS	5825	0.5	150A	5	±100
PSS	8420	0.1	36	1	±100	
Slim Metal Alloy	MLR05	0508	1~10	0.75	0.5、1、2、5	±70~100
	MLR06	0612	1~25	1	0.5、1、2、5	±50~75
	MSR06	0603	2~20	0.5	0.5、1、2、5	±75~150
	MSR08	0805	1.5~25	0.75	0.5、1、2、5	±50~100
	MSR12	1206	1~40	1	0.5、1、2、5	±50~75
Metal Foil	LMS06	0603	5~40	0.5	1、2、5	±50
	LMS08	0805	5~40	0.75	1、2、5	±50
	LMS12	1206	5~40	1	1、2、5	±50
	LRF12	1206	100~910	1	1、2、5	±100
Metal Film	MFR0508	0508	10~2Ω	1	0.5、1、2、5	±100~±150
	MFR0612	0612	10~2Ω	1	0.5、1、2、5	±100~±150
	MFR1020	1020	10~2Ω	2	0.5、1、2、5	±100~±150
	MFR1225	1225	10~2Ω	3	0.5、1、2、5	±100~±150
	MFR12	1206	1Ω~10Ω	0.5~1	0.25、0.5、1、2、5	±50
	MFR25	2512	501~910 1Ω~10Ω	1~3	0.25、0.5、1、2、5	±50

- Power rating at 70°C.
- The formula for calculating the rated voltage: $V = \sqrt{P \cdot R}$
- (A):AEC-Q200 compliant

Chip Fuses

PROSEMI Chip Fuses are the fuses setting the industry standard for performance, reliability and quality. The solder-free design provides excellent on-off and temperature cycling characteristics in use and also makes our SMD fuses more heat and shock tolerant than typical subminiature fuses.

Small Size
Current Ratings Up to 40A



Features

- Small size 0.04x0.02 / 0.06x0.03 / 0.12x0.06 inch
- Halogen free, lead free and RoHS compliant
- Excellent environmental integrity
- One time positive disconnect
- AEC-Q200 Automotive Grade Certified

Applications

- Flat panel displays and televisions
- Automotive infotainment and ECU
- Computer servers
- Portable electronics
- Mobile device chargers
- Power Battery Packs



Electrical Characteristics

Series	Ampere Rating (A)	Voltage Rating (V)	Interrupting Rating	Size(inch)/Package	Operating Temperature (°C)	Class of Operation
0402FA	0.2~4	32Vdc	35A	0.04x0.02/0402	-20~105	Very Fast Acting
0603FA	0.25~5 6~8	63Vdc 32Vdc	50A	0.06x0.03/0603	-55~125	Fast Acting
0603TD	0.25~8	32Vdc	50A	0.06x0.03/0603	-55~125	Time Delay
1206FA	0.25~4 4.5~30 40	72Vdc 32Vdc 32Vdc	50A 150A 200A	0.126x0.064/1206	-55~125	Fast Acting
1206TD	0.63~7 8~30 40	72Vdc 48Vdc 36Vdc	50A 200A 200A	0.126x0.064/1206	-55~125	Time Delay
1206HV	0.25~3 3.5~7 8~20	125Vac/dc 72Vdc 48Vdc	50A 50A 150A	0.126x0.064/1206	-55~125	Fast Acting
1214FA	40~60	24Vdc	300A	0.126x0.142/1214	-65~125	Fast Acting

- DC Interrupting Rating - Measured at designated voltage, time constant < 50 microseconds.
- DC Cold Resistance are measured at <10% of rated current in ambient temperature of 25°C.
- Typical Melting I²t measured at 10In Current.
- Typical Voltage Drop measured at rated current after temperature has stabilized.

Brick Fuses

The Brick Fuses from PROSEMI can be used to address numerous over-current protection applications. High current brick fuse surface mount design to save space. Square body with end cap design fully compliant with UL248-1 lead-free solder and high temperature profile associated with lead-free assembly.

High I²t Fuse
Over-Current Protection



Features

- Square body with Silver plated end cap
- Surface mount design to save space
- Halogen free, lead free and RoHS compliant
- Excellent environmental integrity
- Fully compatible with lead-free solder and high temperature profile associated with lead-free assembly
- Designed to be compliant with UL 248-1

Applications

- Flat panel displays and televisions
- Automotive infotainment and ECU
- Computer servers
- Portable electronics
- Mobile device chargers
- Power Battery Packs
- LED and general lighting



Electrical Characteristics

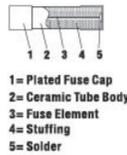
Series	Ampere Rating (A)	Voltage Rating (V)	Interrupting Rating	Size(inch)/Package	Operating Temperature (°C)	Operating Characteristics
2410FA	0.5~15 20~30	125Vac/dc 72Vdc	50A 500A	0.24x0.10/2410	-55~125	Fast Acting
2410TD	0.25~7	125Vac/dc	50A	0.24x0.10/2410		Time Delay
2410LC	0.1~7	250Vac	50A	0.24x0.10/2410		Time Delay
2410BP	20~40	72/63Vdc	500A	0.24x0.10/2410		High I ² t Fuse
1240FH	20~30	250Vac 125Vac 80Vdc	150A 150A 800A	0.40x0.13/1032		Fast Acting
	40~100	125Vac 72Vdc	500A 1000A	0.49x0.18/1245	Fast Acting	
DHC45	20~60	85/72/63Vdc	1000A	0.43x 0.2	-40~125	High Current
1032FH	20~60	80Vdc	600A	0.40x0.13/1032	-55~125	Fast Acting
1245FA	0.5~5	600Vdc/350Vac	100A	0.49x0.18/1245	-55~125	Fast Acting

- DC Interrupting Rating - Measured at designated voltage, time constant < 50 microseconds.
- DC Cold Resistance are measured at <10% of rated current in ambient temperature of 25°C.
- Typical Melting I²t measured at 10In Current.
- Typical Voltage Drop measured at rated current after temperature has stabilized.

Ceramic Tube Fuses

Ceramic Tube Fuses has excellent cycling capability and AC & DC performance, low watt losses with less heating and power consumption in circuit. Low I²t and peak let-through currents meet most semiconductor requirements.

High Interrupting Rating



Features

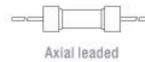
- Compact size 5x20mm / 6x32mm
- Special Engineering Material tube
- Lead free and RoHS compliant
- Silver plated copper cap construction
- Designed to UL 248-1
- Various installation form applied to various locations

Applications

- Uninterruptible Power Supplies(UPS)
- Digital Meter
- Three-Phase Power Supplies
- Industrial Power
- Power Battery Packs
- New Energy Vehicles



Holder Code:



Electrical Characteristics

Series	Ampere Rating (A)	Voltage Rating (V)	Interrupting Rating	Size(mm)	Operating Temperature (°C)	Class of Operation
5CT1	0.2~1 1.6~20	600Vac	1000A 200A	5x20	-55~125	Fast Acting
5CT2	0.50~20	600Vac	200A	5x20		Time Delay
	0.50~10	400Vdc	2000A			Fast Acting
5CT3	0.2~20	500Vdc	300A	5x20		Time Delay
5CT5	0.5~20	300Vac/dc	3000A	5x20		Fast Acting
6CT1	0.20~12	600Vac/dc	10kA	6x32		Fast Acting
6CT2	0.2~1	1000Vac/dc	10kA	6x32		Fast Acting
	1.25~3	1000Vdc	10kA			Time Delay
6CT3	5~50	75Vdc	2500A	6x25		Time Delay
	63	63Vdc	10000A			Fast Acting
6CT5	20~50	250Vac/150Vdc	1000A	6x32		Fast Acting
6CT6	10~30A	500Vac	30kA	6x32		Fast Acting
		500Vdc	20kA			Fast Acting
6CT7	10~30	500Vac/dc	1000A	6x32		Fast Acting
6CT8	20~30	500Vac	1000A	6x32		Fast Acting

- DC Interrupting Rating - Measured at designated voltage, time constant < 50 microseconds.
- DC Cold Resistance are measured at <10% of rated current in ambient temperature of 25°C.
- Typical Melting I²t measured at 10In Current.
- Typical Voltage Drop measured at rated current after temperature has stabilized.

PV Fuses

PROSEMI PV fuse is designed to integrate into an in-line assembly within a wire harness. The PV fuse provides Photovoltaic Wire Harness protection that meets UL-248 for photovoltaic applications.

1000Vdc/1500Vdc PV fuse For Photovoltaic wire harness



Class: gPV

Features

- Compliance with US Requirements
- Ceramic Body construction
- RoHS compliant
- Designed to UL 248-19 Recognized
- Low watts loss

Applications

- Photovoltaic wire harness



Electrical Characteristics

Series	Ampere Rating (A)	Voltage Rating (V)	Interrupting Rating	Size(mm)	Operating Temperature (°C)	Class of Operation
10PVT	1~30	1000Vdc	30kA	10x38	-55~125	gPV
PV1500A	2.5~6	1500Vdc	20kA	10x57	-55~125	gPV
PV1500E	20~30	1500Vdc	30kA	10X85	-55~125	gPV

- DC Interrupting Rating - Measured at designated voltage, time constant < 50 microseconds.
- DC Cold Resistance are measured at <10% of rated current in ambient temperature of 25°C.
- Typical Melting I²t measured at 10In Current.
- Typical Voltage Drop measured at rated current after temperature has stabilized.

EV Fuses

The PROSEMI EV Fuses is designed for protection of accessory circuits in electric and hybrid electric vehicles. Higher interrupting rating protects high capacity battery packs needed for vehicle acceleration and range requirements.

EV Fuses For New Energy Vehicles



JASO D622
ISO 8820-8

Features

- Designed to JASO D622 & ISO 8820-8
- Excellent DC performance
- Lead free and RoHS compliant
- High Inrush withstanding
- Resistance to temperature and humidity cycle shock
- Low watts loss and high durability

Applications

- Power Distribution Unit (PDU)
- Energy storage device
- Inverters
- EV&HEV Power Battery
- DC drives
- EV Charging module



Electrical Characteristics

Series	Ampere Rating (A)	Voltage Rating (V)	Interrupting Rating	Size(mm)	Operating Temperature (°C)	Class of Operation
10CT2	10~80 100	200Vdc 100Vdc	50kA 33kA	10x28.5(Max)	-40 ~125	Fast Acting
10CT3	15~80 100	250Vdc 200Vdc	50kA	10x28.5(Max)		Fast Acting
10CT5	10~50	500Vdc	20kA	10x38		Fast Acting
10CT8	5~40 50	800Vdc 750Vdc	50kA	10x38		Fast Acting
10CT8-AS	0.44~15	1000Vac/dc	30kA	10x38		Fast Acting
10CT10	5~30	1000Vdc	50kA	10x38		EV Fuse
ESJ10	40~80 100~200 250~350 400~600	1000Vdc	50kA	18x68 30x65 38x70 38x70(x2)		Fast Acting
14CT5	50~80 100	500Vdc 420Vdc	20kA	14x40		Fast Acting
14CT8	50~80	800Vdc	50kA	14x40		Fast Acting
14CT10	40~50	1000Vdc	50kA	14x40		Fast Acting

- DC Interrupting Rating - Measured at designated voltage, time constant < 50 microseconds.
- DC Cold Resistance are measured at <10% of rated current in ambient temperature of 25°C.
- Typical Melting I²t measured at 10In Current.
- Typical Voltage Drop measured at rated current after temperature has stabilized.

High-Speed Square Body Fuses

PROSEMI High-Speed Square Body Fuses protect devices from over currents that may cause damage to equipment. High speed fuses are reliable, quick reactors that can reduce the amount of short circuit current.

High Speed Fuses For Manual Service Disconnect(MSD)



Features

- Designed to IEC 60269-4 & UL248-13
- Wide range of ampere ratings
- Halogen free, lead free and RoHS compliant
- Excellent cycling capability
- Low I²t and peak let-through currents
- Low watts loss

Applications

- Variable speed drives
- Power rectifiers
- DC power supplies
- Uninterruptible Power Supplies(UPS)
- Industrial Power
- Power Battery Packs



Electrical Characteristics

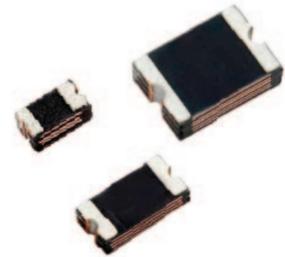
Series	Ampere Rating (A)	Voltage Rating (V)	Interrupting Rating	Size(mm)	Operating Temperature (°C)	Class of Operation
HMSD15	600~700	150Vdc	50kA	35x37x32	-40 ~125	High Speed
H2SA	150~350	200Vdc	50kA	36x22x25		High Speed
E2ETS	200~500	250Vdc	50kA	37x36x20.5		High Speed
H5SA	100~250	500Vdc	50kA	49x22x25		High Speed
E5SD	150~400	500Vdc	50kA	49x36x24		High Speed
HMSD50	400~500	500Vdc	50kA	49x36.5x31.5		High Speed
HMSB50	450~700	500Vdc	50kA	55x43x47		High Speed
HMSB75	500~630	750Vdc	50kA	55x43x47		High Speed
E7SD	200~250	750Vdc	50kA	57x36x24		High Speed
E8SD	150~400	800Vdc	20kA	57x36x24		High Speed
H8SA	100~250	800Vdc	50kA	57x20x25		High Speed
E8SA	100~200	800Vdc	50kA	57x20x25		High Speed
HMSB10	200~300 350~400	1000Vdc	50kA	71.8x43x47 75x48x52		High Speed
H10SA	63~175	1000Vdc	50kA	74x20x25		High Speed
E10SD	150~250	1000Vdc	50kA	117x36x24		High Speed
HMSB15	200~315	1500Vdc	50kA	110.8x43x47.2		High Speed

- DC Interrupting Rating - Measured at designated voltage, time constant < 50 microseconds.
- DC Cold Resistance are measured at <10% of rated current in ambient temperature of 25°C.
- Typical Melting I²t measured at 10In Current.
- Typical Voltage Drop measured at rated current after temperature has stabilized.

SMD Resettable Fuses

PROSEMI PPTC devices which offer a resettable overcurrent protection solutions, thereby reducing warranty service and repair costs. Ideal for situations where frequent overcurrent conditions occur or constant uptime is required. PPTCs are typically used in consumer electronics, telecom, automotive and medical equipment protection applications.

Low resistance
Low-profile



Features

- Compact design saves board space
- Fast response to fault currents
- Compatible with high temperature solders
- Low resistance
- Low-profile
- RoHS compliant, lead-free and halogen-free

Applications

- Computer
- Portable electronics
- Multimedia
- Game machines
- Telephony and broadband
- Mobile phones
- Automotive
- Industrial controls



Electrical Characteristics

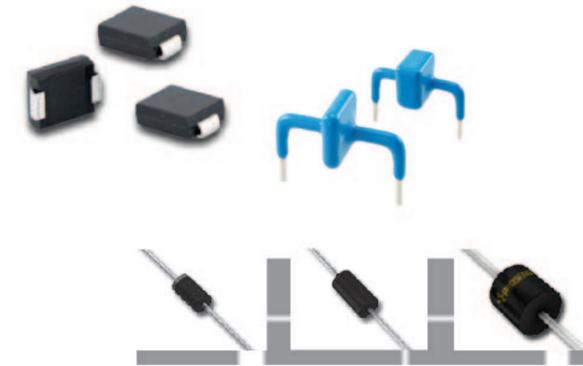
Series	I _{hold} (A)	V _{max.} (Vdc)	I _{max.} (A)	Operating Temperature (°C)
SRF0603P	0.01~1	6~60	20~40	-40 ~ 85
SRF0805P	0.05~1.5	6~60	40~100	
SRF1206P	0.05~2	6~60	10~100	
SRF1210P	0.05~2	6~60	10~40	
SRF1812P	0.1~3	6~60	10~100	
SRF2920P	0.3~5	8~60	10~100	

• I_{hold} = Hold current: maximum current device will pass without tripping in 25°C still air.
 • V_{max} = Maximum voltage device can withstand without damage at rated current (I_{max})
 • I_{max} = Maximum fault current device can withstand without damage at rated voltage (V_{max})

Power TVS Diodes

PROSEMI Power TVS diodes are used in sensitive electronics protection against voltage transients induced by inductive load switching and lightning on ICs sensor units specifically for protecting supplied sensitive equipment against transient overvoltages.

Over-Voltage Protection Products



Features

- Designed to AEC-Q101
- Available in uni-directional and bi-directional
- Halogen free, lead free and RoHS compliant
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance

Applications

- Computers & Consumer Electronics
- Automotive and Telecommunication
- Power lines
- I/O Interfaces
- Industrial Electronics



Electrical Characteristics

Series	Peak Pulse Power (PPM)	Reverse Stand Off Voltage (V _{RWM})	Package	Operating Temperature (°C)	Peak Pulse Current (I _{PP})
Surface Mount					
SMF	200W	3.3~440	SOD~123FL	-55~150	N/A
P2SM	200W	5.8~450	SOD~123FL		
P4SM	400W	5.8~214	SOD~123FL		
P4SMFL	400W	5~220	SOD~123FL		
SMAJ	400W	5~550	DO~214AC		
P4SMA	400W	5.8~509	DO~214AC		
SMA6J	600W	5~440	DO~214AC		
SMBJ	600W	5~550	DO~214AA		
P6SMB	600W	5.8~509	DO~214AA		
SMB10J	1000W	5~440	DO~214AA		
1.0SMB	1000W	5.8~450	DO~214AA		
SMCJ	1500W	5~550	DO~214AB		
1.5SMC	1500W	5.8~509	DO~214AB		
SMDJ	3000W	5~440	DO~214AB		
3.0SMC	3000W	5~214	DO~214AB		
5.0SMDJ	5000W	11~400	DO~214AB		
5.0SMC	5000W	5.8~171	DO~214AB		
6.0SMDJ	6000W	22~36	DO~214AB		
SM6S	4600W	10~36	DO~218AB		
SM8S	6600W	10~43	DO~218AB		

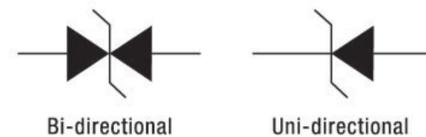
Power TVS Diodes

Electrical Characteristics (continued)

Series	Peak Pulse Power (P _{PPM})	Reverse Standoff Voltage (V _{RWM})	Package	Operating Temperature (°C)	Peak Pulse Current (I _{PP})
Axial Leaded					
P4KE	400W	5~440	D0-41	-55~175	N/A
SA	500W	5~170	D0-15		
P6KE	600W	5.8~509	D0-15		
1.5KE	1500W	5.8~509	D0-27		
3KP	3000W	5~440	P600		
5KP	5000W	5~440	P600		
15KP	15000W	17~280	P600		
30KP	30000W	28~288	P600		
Axial Leaded-High Current					
AK3	N/A	AC 8.5~385 DC 12~500	Radial Lead	-55~150	3 kA
AK6	N/A	AC 8.5~385 DC 12~500	Radial Lead		6 kA
AK10	N/A	AC 8.5~385 DC 12~500	Radial Lead		10 kA
AK15	N/A	AC 8.5~385 DC 12~500	Radial Lead		15 kA
AK16					16 kA
AK20	N/A	DC 20~133	Radial Lead		20 kA

Peak Pulse Power (P_{PPM}) at 10/1000 μs waveform
Peak Pulse Current (I_{PP}) at 8/20 μs waveform

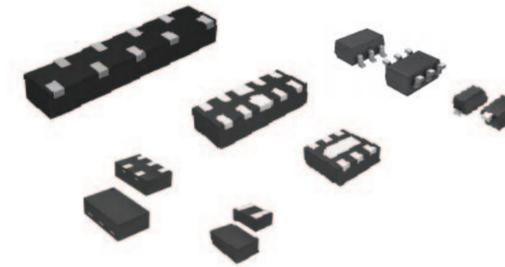
Graphical Symbol



ESD Protection

PROSEMI offers an ideal protection solution for I/O interfaces and digital and analog signal lines. Protect electronics from fast and damaging voltage transients, such as lightning and electrostatic discharge. (ESD/EFT/Lightning)

Transient Voltage Suppressors for ESD Protection



Assists Equipment to Pass:
IEC 61000-4-2 (ESD)
IEC 61000-4-4 (EFT)
IEC 61000-4-5 (Lightning)

Features

- Protects I/O lines and a power line
- Small package saves board space
- Halogen free, lead free and RoHS compliant
- Ultra low capacitance
- Low leakage current and clamping voltage

Applications

- USB 2.0/3.0/3.1 Port
- HDMI 1.4/2.0 Port
- High Speed Data Line
- Hand Held Portable Device
- Wireless System
- Vbat pin for Mobile Device



Electrical Characteristics

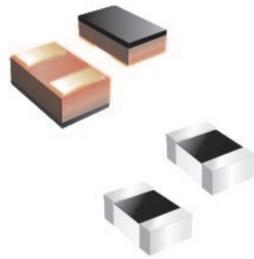
Series	Number of Channels	Reverse Standoff Voltage (V _{RWM})	Package	Capacitance I/O pin to GND (pF Typ.)	I _{pp} @8/20μs (A)
Surface Mount and Small Package					
PTN062	1	3.3~5	DFN0603P2	0.2~12	3.5~9
PTN102	1	3.3~36	DFN1006P2	0.2~220	2.5~45
PTN103	2	5	DFN1006P3	0.3~6.5	4~5
PTN203	2	5~36	DFN2020P3	20~1400	20~280
PTN162	1	5~12	DFN1610P2	1.5~520	17~95
PTN205	4	5	DFN2010P5	0.2	3
PTN2510	4	3.3~5	DFN2510P10	0.3~0.5	3~4
PTN3310	8	5	DFN3310P10	0.4	3
PTN4110	8	5	DFN4120P10	0.2	3
PTN2610	8	3.3	DFN2626P10	2.8	26
PTD322	1	3~36	SOD-323	0.5~560	3.5~120
PTD522	1	3~36	SOD-523	0.2~110	2.5~45
PTD922	1	3.3~12	SOD-923	0.5~80	2.5~42
PTT144	3	5	SOT-143	0.35~0.6	3~6
PTT233	2	3.3~36	SOT-23-3L	0.25~200	3.5~25A
PTT236	4	3.3~12	SOT-23-6L	0.2~30	3.5~40A
PTT366	3/4	5	SOT-363	0.8~180	5~12
PTT523	2	5	SOT-523	0.8	5
PTT566	4	5	SOT-563	0.8	5
PTP88	4	2.8~5	SOT-8	0.8~10	2~25

Enhanced ESD capability up to 30kV (contact discharge)
Response time is typically < 1ns
Operating temperature -55 to +125°C

Polymer ESD Suppressors

Polymer ESD Suppressors protection devices offer extremely low capacitance for use in high-speed data circuits. Available in single-line and multi-line packages, they provide ESD protection while ensuring that signal integrity is maintained.

ESD Protection Suppressors Ultra low capacitance



Features

- Ultra low capacitance (0.05pF typ.) ideal for high speed data applications
- Small package saves board space
- Halogen free, lead free and RoHS compliant
- Provides ESD protection with fast response time
- Low leakage current and clamping voltage
- AEC-Q101 compliant

Applications

- USB 2.0/3.0/3.1 Port
- HDMI 1.4/2.0 Port
- High Speed Data Line
- Hand Held Portable Device
- Wireless System
- Vbat pin for Mobile Device



Electrical Characteristics

Series	Number of Channels	Reverse Standoff Voltage (V _{RWM})	Package	Capacitance I/O pin to GND (pF Typ.)	Trigger and Clamping Voltage (V)
UPEP2Dxxx	1	5/12/24/30	0201 0402 0603	0.05	350/35

- Response Time is Typically < 1ns
- Per IEC61000-4-2, Level 4 waveform (8kV direct, 30A) measured 30ns after initiation of pulse.
- Trigger measurement made using Transmission Line Pulse (TLP) method.
- ESD Pulse Withstand >1000 typical
- Operating temperature -55 to +125°C

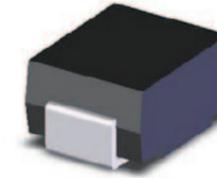
Package and PIN Configuration



0201
0402
0603

LED Protectors

Low on-state voltage Low capacitance



Features

- Low voltage overshoot
- Low on-state voltage
- Does not degrade in capability after multiple surge events within limit
- Low capacitance
- Fails short circuit when surged in excess of ratings
- AEC-Q101 qualified

Applications

- Audio/Video line
- Network and telecom
- Data lines and security systems
- Serial ports

Electrical Characteristics

Series	Package	V _{DRM} (V) Min.	V _s (V) Max.	V _{T@I_T} (V)	I _H (mA) Min.	I _T (A)
PLEDxxBS	SMB	6~25	15~40	1.5~4	20~30	1~2.2
PLEDxxFS	SOD-123FL	5	15	1.5	20	1

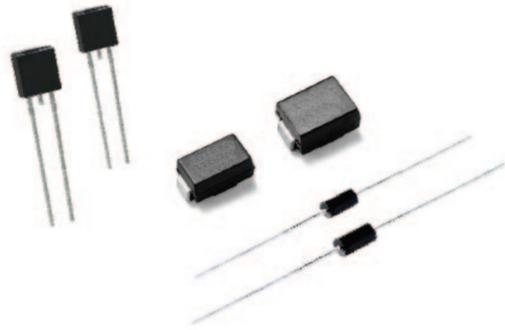
Graphical Symbol



Thyristor Surge Suppressors(TSS)

PROSEMI TSS Series are designed to protect baseband equipment such as modems, line cards, CPE and DSL from damaging overvoltage transients. The series provides a surface mount solution that enables equipment to comply with global regulatory standards.

Over-voltage Protection Thyristor Devices



Features

- Fast response in microseconds
- High Surge Current Protection
- Excellent Surge Withstanding Capability
- Low on-state voltage
- Bi-directional crowbar transient voltage protection
- Short-circuit failure mode

Applications

- T-1/E-1, ISDN, and xDSL transmission equipment
- Customer Premises Equipment (CPE) such as phones, modems, and caller ID adjunct boxes
- PBX's, KSU's and other switches
- Data lines and security systems
- CATV line amplifiers and power inserters



Electrical Characteristics

Series	Type	Package	Standoff Voltage (V _{ORM})	Switching Voltage (V _s)	Surge Waveform	surge ratings
PxxxFA	A	SOD123FL	6~25	25~40	10/700uS	2KV
PxxxFB	B	SOD123FL	6~25	25~40	10/700uS	4KV
PxxxTA	A	SMA	6~400	25~520	10/700uS	2KV
PxxxTB	B	SMA	6~400	25~520	10/700uS	4KV
PxxxSA	A	SMA	6~320	25~400	10/700uS	2KV
PxxxSB	B	SMA	6~400	25~520	10/700uS	4KV
PxxxSC	C	SMA	6~400	25~520	10/700uS	6KV
PxxxLA	A	DO-41	6~400	25~520	10/700uS	2KV
PxxxLB	B	DO-15	6~400	25~520	10/700uS	4KV

- Peak pulse rating (I_{pp}) is repetitive and guaranteed for the life of the product.
- Absolute maximum ratings measured at Ta= 25°C
- I_{pp} rating applicable over temperature range of -40 to + 85°C
- Operating temperature -40 to + 150°C

Graphical Symbol



Gas Discharge Tubes(GDT)

The PROSEMI GDT technology is capable of handling very high surge currents, possess very high off-state insulating resistance and is very low in capacitance making them ideal as a stand-alone protector or as the primary stage of a multi-stage circuit protection design.

Lightning Protection Devices



Features

- Rugged ceramic-metal construction
- Low capacitance >0.1pF
- High surge current rating
- Compact mini size
- Lead free and RoHS compliant

Applications

- Power supplies
- Test equipment
- Submersible pumps
- LCD/LED terminals
- CATV equipment
- Antennas
- Medical electronics

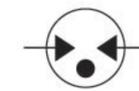


Electrical Characteristics

Series	DC Sparkover Voltage @100V/s (V)	Impulse Sparkover @1kV/μs (V Max.)	Package and Dimensions (mm)	Electrode	Impulse discharge current(8/20us)	Insulation resistance
PG2D12	90~600	700~1200	3.2x1.6x1.6mm	2	0.5KA	1GΩ
PG2D18	90~600	700~1200	4.5x3.2x2.7mm	2	1KA	1GΩ
PG5D5	90~600	700~1200	φ5x5mm	2	5KA	1GΩ
PG5D7	90~600	700~1200	φ5x7.5mm	3	5KA	1GΩ
PG8D6	90~4500	700~6500	φ8x6mm	2	5~20KA	1GΩ
PG8DAT	90~600	700~1200	φ8x10mm	3	5~10KA	1GΩ
PG1400	1400	2500	φ9.4x16	5	20KA	1GΩ

- Devices test at ambient temperature of 25°C
- Operating temperature -40 to + 125°C

Graphical Symbol



2-Electrode



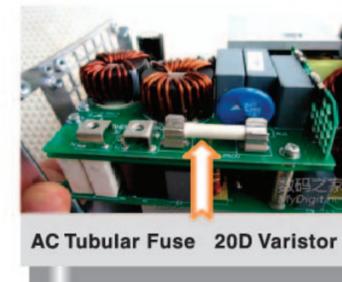
3-Electrode

5G Base Station

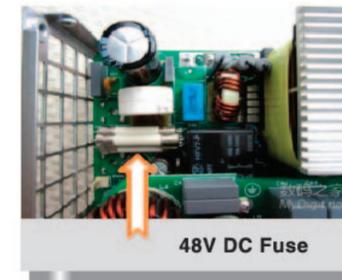
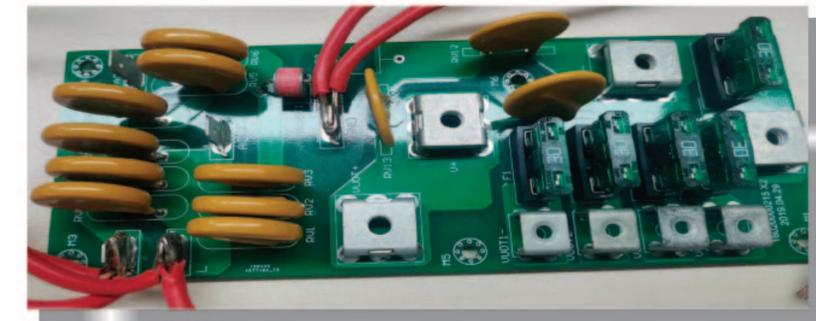


The products that Prosemi can provide for circuit protection of 5G base stations include CSR, DC fuse, high-power TVS and GDT.

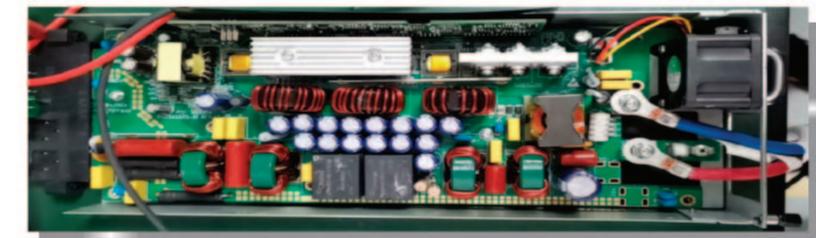
5G Base Station



AC Tubular Fuse 20D Varistor



48V DC Fuse



CSR

Series	Package	Rating Power at 70 °C (W)	T.C.R. (ppm/°C)	Resistance Range(mΩ)	ResistanceTol.(%)
LMP25	2512	2/3	± 50	1-500	1、 2、 5
PSRP39	3921	4-12	±50-200	0.2-5	0.5、 1、 2、 5
PSRP59	5930	7-15	±50-200	0.1-3	0.5、 1、 2、 5

Fuses

Series	Package	Rated Voltage (V)	Rated Current (A)	Breaking Capacity(A)
5CT1	5x20	600ac	0.2-20	200/1000
1240FH	0.4x0.13/0.49x0.18	72-80dc/125-250ac	20-100	150-1000
2410	0.24x0.10	63dc-250ac	0.5-40	50/500

Power TVS Diodes

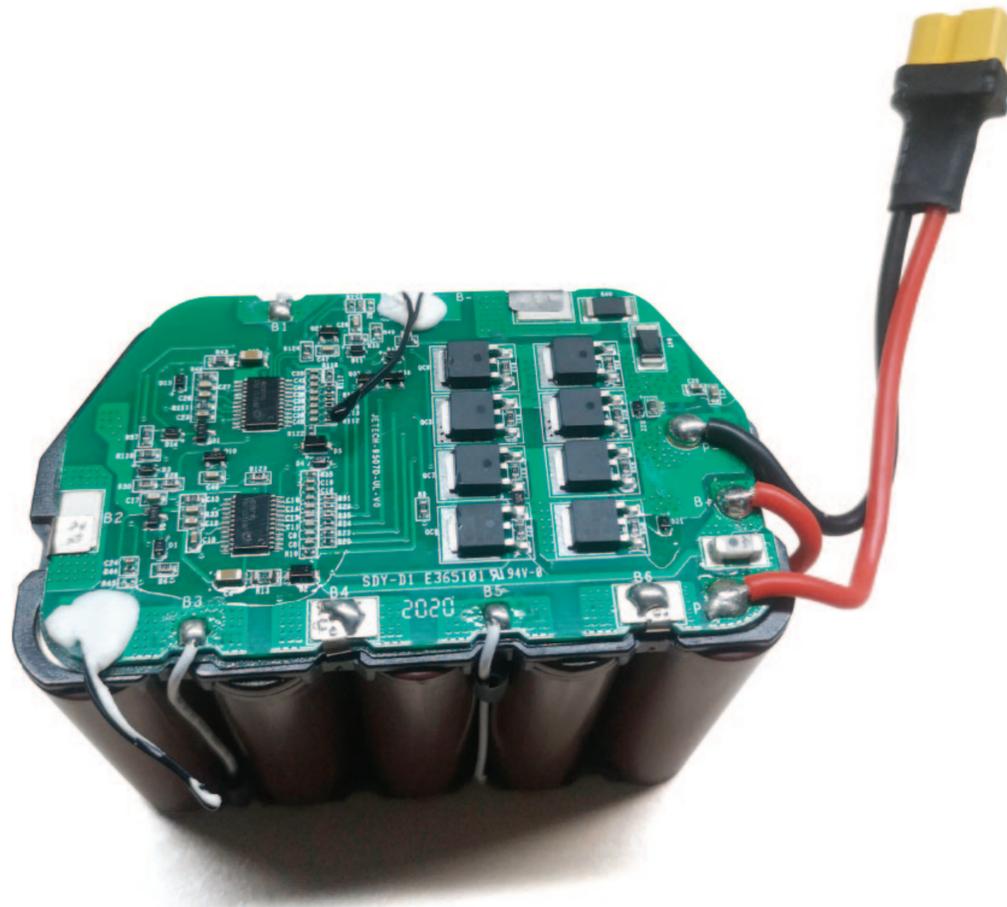
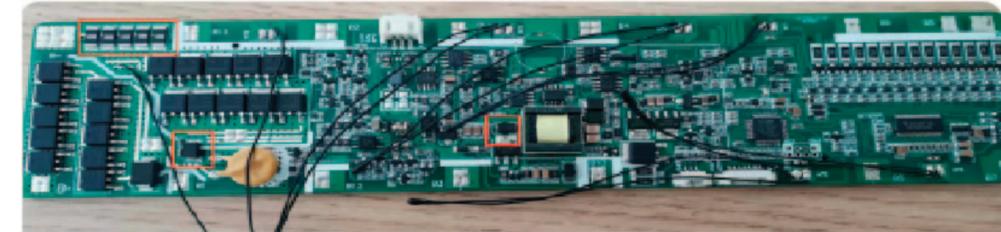
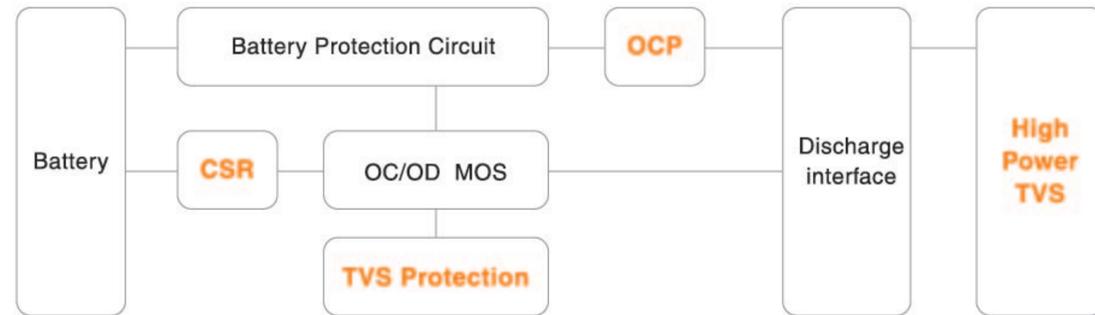
Type	Package	Pin Configuration	Reverse Standoff Voltage (V _{RWM} /V)	Peak Pulse Power (PPM/W)
SMDJ	DO-214AB	Uni/Bi-direction	5-440	3000
AK	Radial Lead	Bi-direction	8.5-385ac 12-500dc	N/A

GDT

Series	DC spark-over voltage@100V/S (V)	Impulse spark-over Voltage@1KV/us (V)	Dimensions (mm)	Electrode	Impulse discharge current (8/20us/KA)	Insulation resistance
PG8D6	90-600	700-1200	φ8x6	2	10-20	1GΩ
PG1400	1400	2500	φ9.4x16	5	20	1GΩ

BMS

Power battery / Energy storage



CSR

Series	Package	Rating Power at 70 °C (W)	T.C.R. (ppm/°C)	Resistance Range(mΩ)	Resistance Tol. (%)
LMJ08	0805	0.5	± 50	1~25	1、2、5
LMJ12	1206	0.5/1	± 50	1~100	1、2、5
LMJ25	2512	2	± 50	1~10	1、2、5
LMP25	2512	2/3	± 50	1~500	1、2、5
PSRP39	3921	4~12	±50~200	0.2~5	0.5、1、2、5
PSRP59	5930	7~15	±50~200	0.1~3	0.5、1、2、5

Fuses

Series	Package	Rated Voltage (V)	Rated Current(A)	Breaking Capacity (A)
1206	0.12x0.06	24~72dc, 125ac	0.25~40	50~300
DHC45	0.43x 0.2	63/72/84dc	20~60	1000
1240FH	0.4x0.13/0.49x0.18	72~80dc/125~250ac	20~100	150~1000
2410	0.24x0.10	63/72dc, 125~250ac/dc	0.5~40	50/500

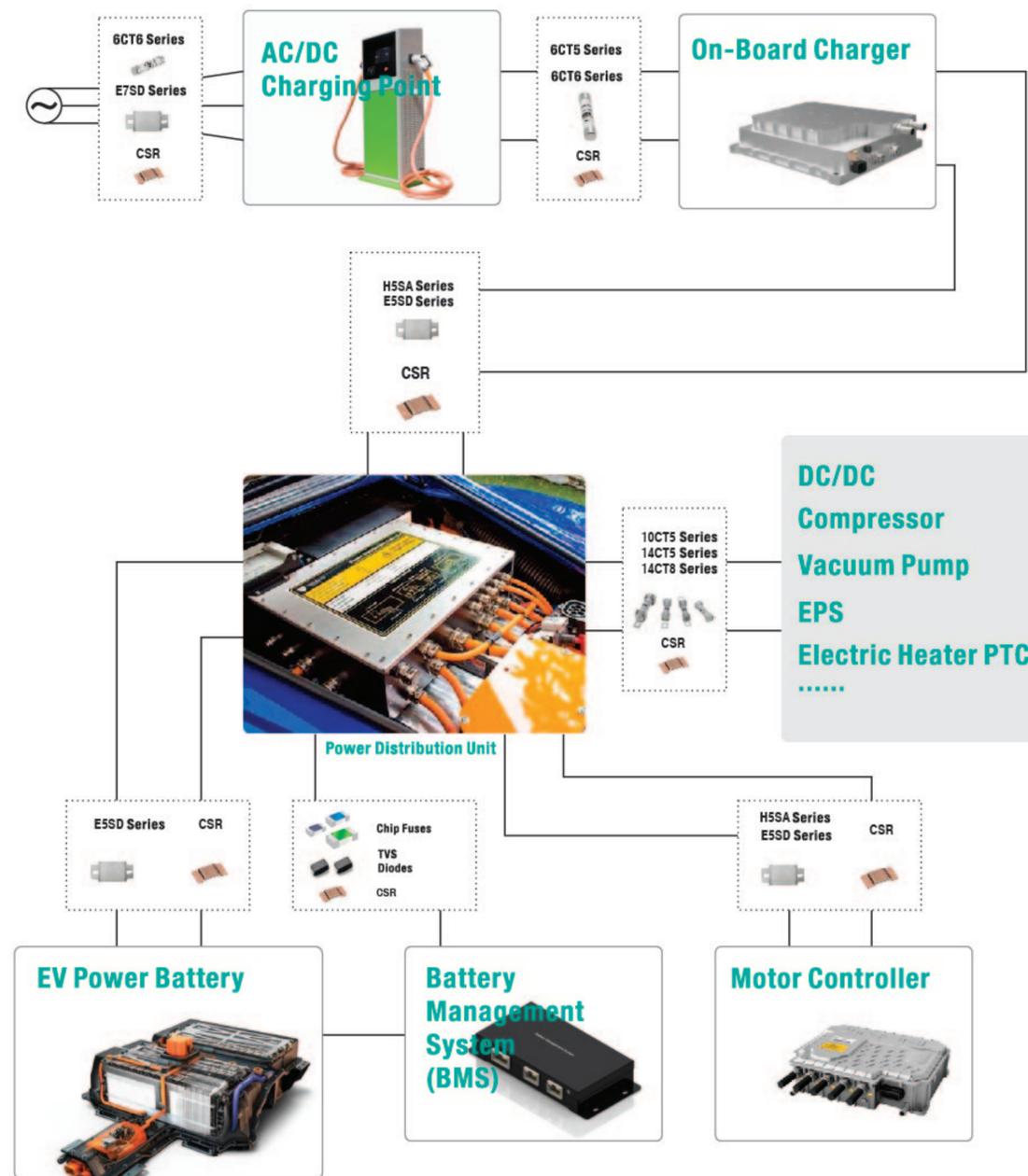
Power TVS Diodes

Type	Package	Pin Configuration	VRMW (V)	Peak Pulse Power (PPPM)
SMDJ	DO-214AB(SMC)	Uni/Bi-direction	5~440	3000W
5.0SMDJ	DO-214AB(SMC)	Uni/Bi-direction	11~400	5000W

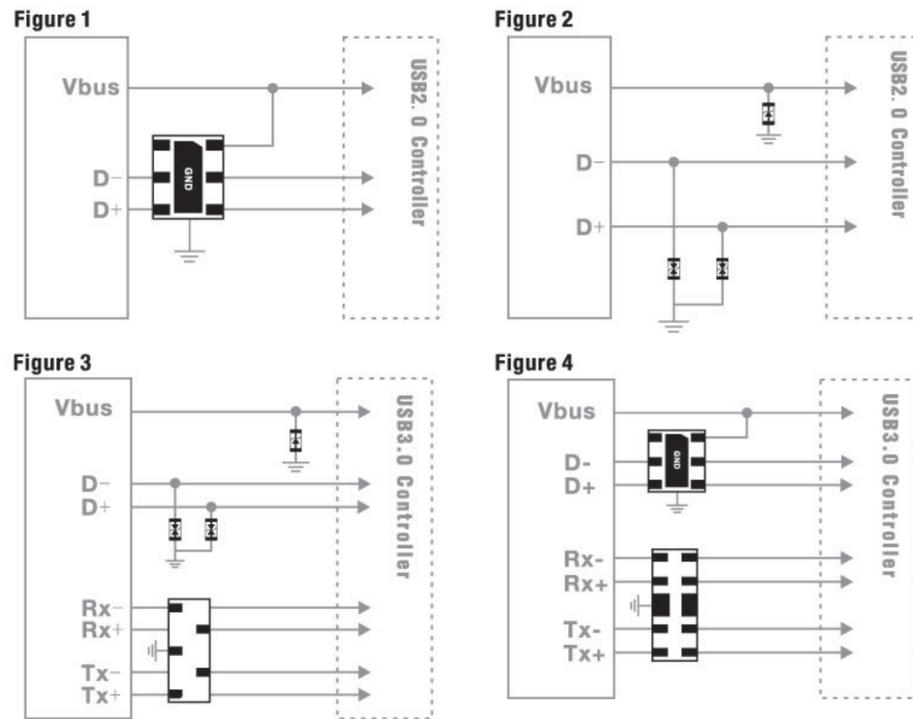
New Energy Vehicles Circuit Protection



- AC/DC Charging Point
- On-Board Charger
- Power Distribution Unit(PDU)
- Electric Vehicles Power Battery
- Battery Management System(BMS)
- Motor Controller



► USB 2.0/3.0 Port ESD Protection



Polymer ESD Suppressors

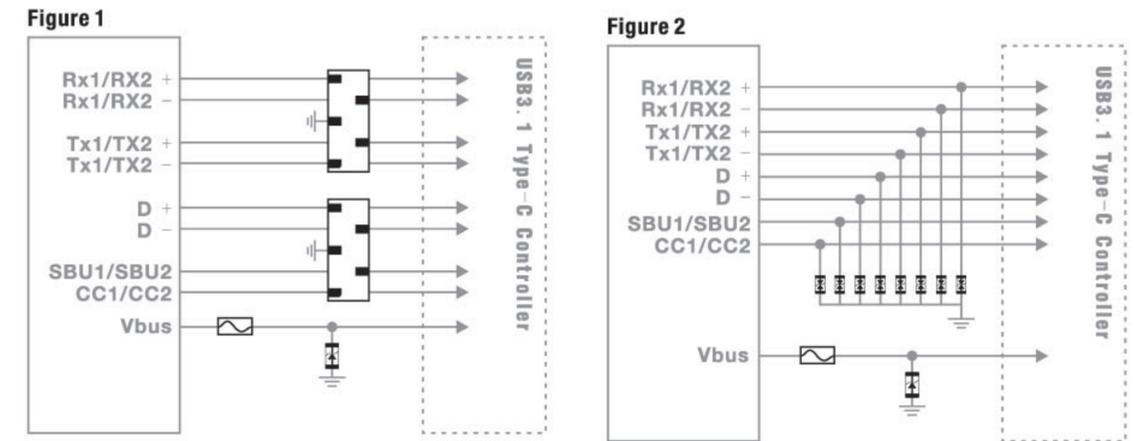
Type	Package	Pin Configuration	Pinout	Operating Voltage (V)	ESD Contact /Air (kV)	Cj typ.(pF)	Packaging (pcs)
UPEP2D05T0402	0402	Bi-direction		5/12/24	8/15	0.05	10,000

ESD Protection

Type	Package	Pin Configuration	Pinout	V _{RWM} (V)	ESD Contact /Air (kV)	Cj typ.(pF)	Packaging (pcs)
PTN102	DFN1006-2L	Uni-direction		5	8/15	13	10,000
PTN102	DFN1006-2L	Bi-direction		5	8/15	0.3	10,000
PTN205	DFN2010P5	4xUni-direction		5	8/15	0.2	10,000
PTN166	DFN1616P6	4xUni-direction		5/12	12/15	0.35/56	3,000

Please contact Prosemi for additional design examples and application assistance

► USB 3.1 Type-C Port ESD Protection



USB Type-C Data Transfer Rate
Up to 10Gbps/s

USB Type-C Power Delivery
Up to 20V@5A



ESD Protection

Type	Package	Pin Configuration	Pinout	Operating Voltage (V)	ESD Contact /Air (kV)	Cj typ.(pF)	Packaging (pcs)
PTN102	DFN1006-2L	Uni-direction		5/9/12	20/30	27	10,000
PTN205	DFN2010P5	4xUni-direction		5	8/15	0.2	10,000
UPEP2D05T0201	0201	Bi-direction		5	8/15	0.05	15,000

Fuses

Series	Package	Rated Current (A)	Rated Voltage (V)	Symbol	Breaking Capacity (A)	Packaging (pcs)
0402FA	0402	0.5A~4A	32		35	10,000
0603TD/0603FA	0603	0.25A~8A	32		50	5,000
1206TD/1206FA	1206	0.25A~30A	24/32/72		300/50/50	3,000

Please contact Prosemi for additional design examples and application assistance

▶ HDMI 1.4/2.0 Port ESD Protection

HDMI Data Transfer Rate

1.4Type Up to 10Gbps/s
2.0Type Up to 18Gbps/s



Figure 1

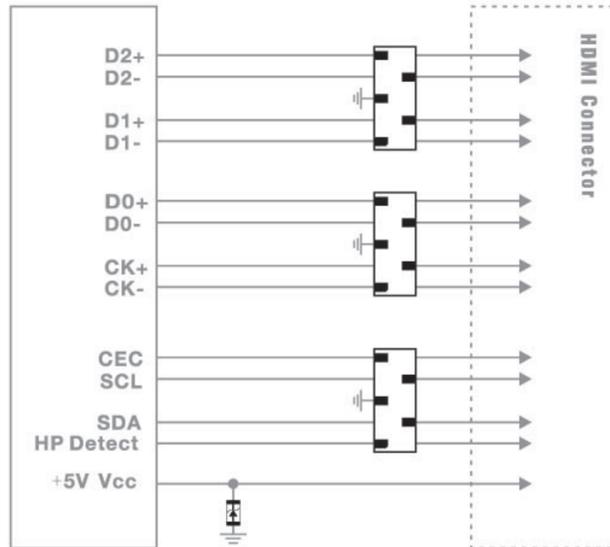
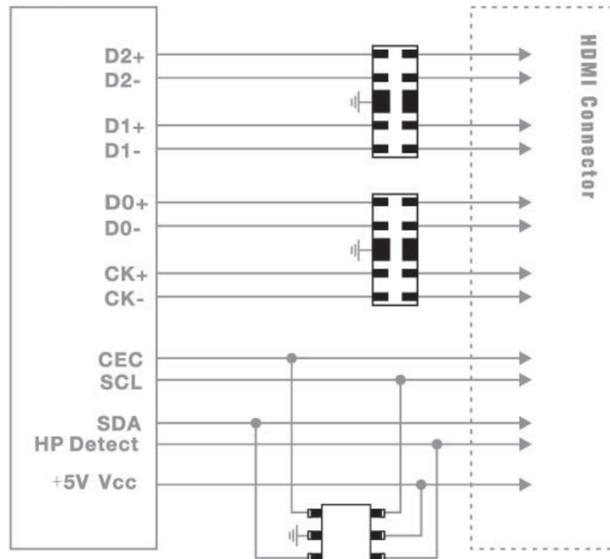


Figure 2



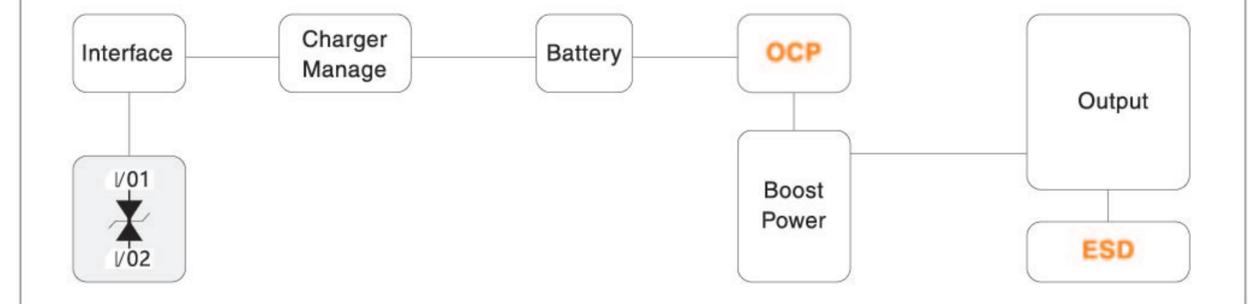
ESD Protection

Type	Package	Pin Configuration	Pinout	Operating Voltage (V)	ESD Contact /Air (kV)	Cj typ.(pF)	Packaging (pcs)
PTN102	DFN1006-2L	Uni-direction		5/9/12	20/30	27	10,000
PTN205	DFN2010P5	4xUni-direction		5	8/15	0.2	10,000
PTT236	SOT-23-6L	5xUni-direction		5	8/15	0.05	3,000

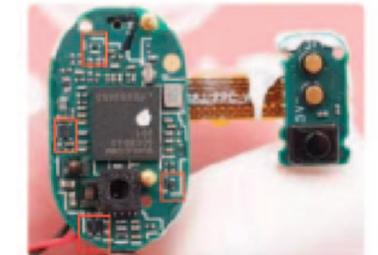
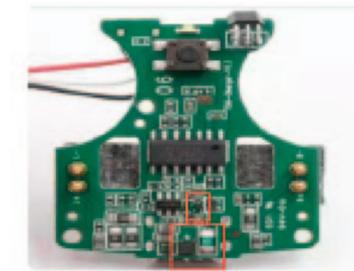
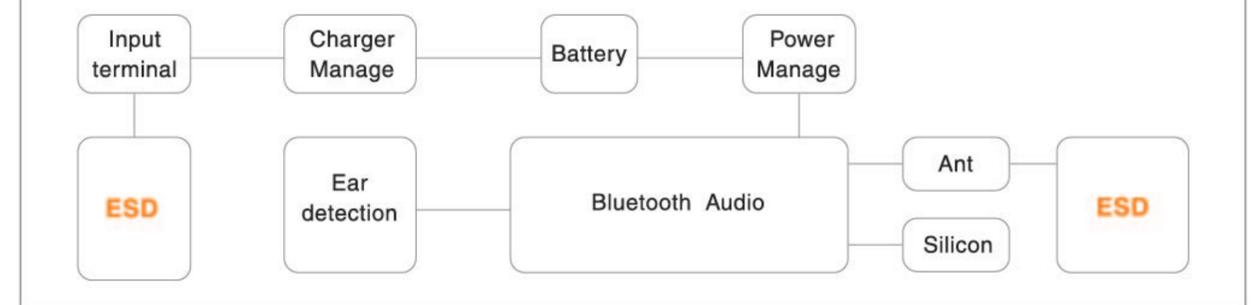
Please contact Prosemi for additional design examples and application assistance

▶ TWS Headset Protection

Charging Box



Earphone



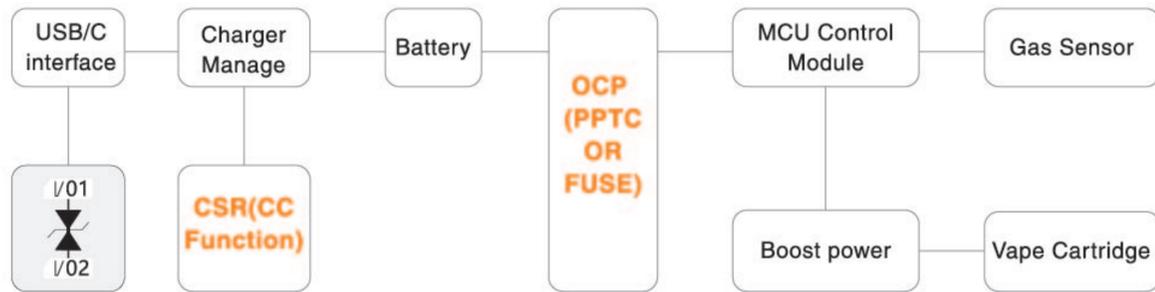
PPTC

Type	Package	Vmax (V)	IH (A)	IT (A)	Rmin(Ω)	R1 max (Ω)	Time to Trip (Sec.)
SRF0603	0603	6~15	0.1~0.5	0.3~1.0	0.1~0.9	0.8~6.0	0.1~1.0
SRF0805	0805	6~24	0.1~1.1	0.3~2.2	0.06~1.0	0.21~7.5	0.3~1.5
SRF1206	1206	6~30	0.05~2.0	0.15~4.0	0.02~2.5	0.12~40	0.1~1.5

ESD Protection

Type	Package	Pin Configuration	V _{RMW} (V)	P _{pp} (W)	Cj typ.(pF)	I _{pp} (A) @8/20μs
PTN102	DFN1006-2L	Uni/Bi-direction	3.3~36	30~500	0.2~270	1~45
PTN203	DNF2020P3	Uni/Bi-direction	4.5~24	5000~6800	350~1000	140~310
PTD522	SOD-523	Uni/Bi-direction	3~36	30~500	0.2~160	2~45

► Electronic Cigarette Protection



CSR

Series	Package	Rating Power at 70 °C (W)	T.C.R. (ppm/°C)	Resistance Range(mΩ)	Resistance Tol.(%)
LMJ08	0805	0.5	± 50	1~25	1、 2、 5
LMJ12	1206	0.5/1	± 50	1~50	1、 2、 5

Fuses

Series	Package	Rating Power at 70 °C (W)	Rated Current(A)	Breaking Capacity(A)
0603FA	0603	32	0.25~8	50

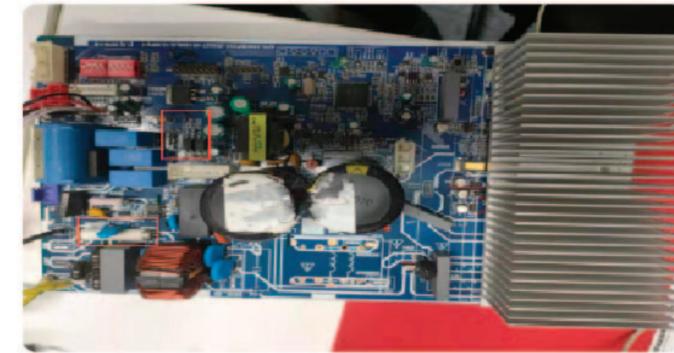
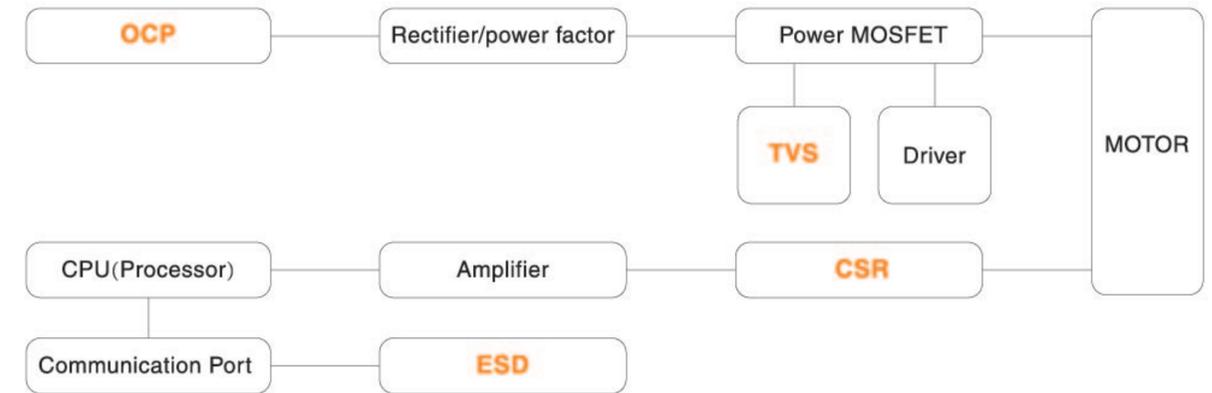
Power TVS Diodes

Type	Package	Pin Configuration	VRMW (V)	Ppp(W)
P2SM	SOD-123	Uni/Bi-direction	5.8~430	200W

ESD Protection

Type	Package	Pin Configuration	VRMW (V)	Ppp(W)	Cj typ.(pF)	Ipp (A) @8/20µs
PTN062	DFN0603-2L	Bi-direction	3.3~12	32~180	0.2~25	3~12
PTN102	DFN1006-2L	Uni/Bi-direction	3.3~36	30~500	0.2~270	1~45
PTN162	DFN1610-2L	Uni/Bi-direction	4.5~12	0.5~750	100~2500	4~135

► Home Appliance Control Board / Motor Drive Protection



CSR

Series	Package	Rating Power at 70 °C (W)	T.C.R. (ppm/°C)	Resistance Range(mΩ)	Resistance Tol.(%)
LMJ25	2512	2	± 50	1~10	1、 2、 5
PMS45	4527	5	± 50	1~200	1、 2、 5
PSRP39	3921	4~12	±50-200	0.2~5	0.5、 1、 2、 5
PSRP59	5930	7~15	±50-200	0.1~3	0.5、 1、 2、 5

Fuses

Series	Package	Rated Voltage (V)	Rated Current (A)	Breaking Capacity(A)
5CT1	5x20	600ac	0.2~20	200/1000
6CT1	6x32	600ac/dc	0.2~12	10000

Power TVS Diodes

Type	Package	Pin Configuration	VRMW (V)	Ppp(W)
SMBJ	DO-214AA(SMB)	Uni/Bi-direction	5~550	600
SMA6J	DO-214AC(SMA)	Uni/Bi-direction	5~440	600
SA	DO-15	Uni/Bi-direction	5~170	500

ESD Protection

Type	Package	Pin Configuration	VRMW (V)	Ppp(W)	Cj typ.(pF)	Ipp (A) @8/20µs
PTN102	DFN1006-2L	Uni/Bi-direction	3.3~36	30~500	0.2~270	1~45
PTD922	SOD-923	Bi-direction	3.3~5	11~100	0.8~70	1~10