Power Connectivity

Jun. 2017
Ver 3.1 Eng

Acmex Co., Ltd.

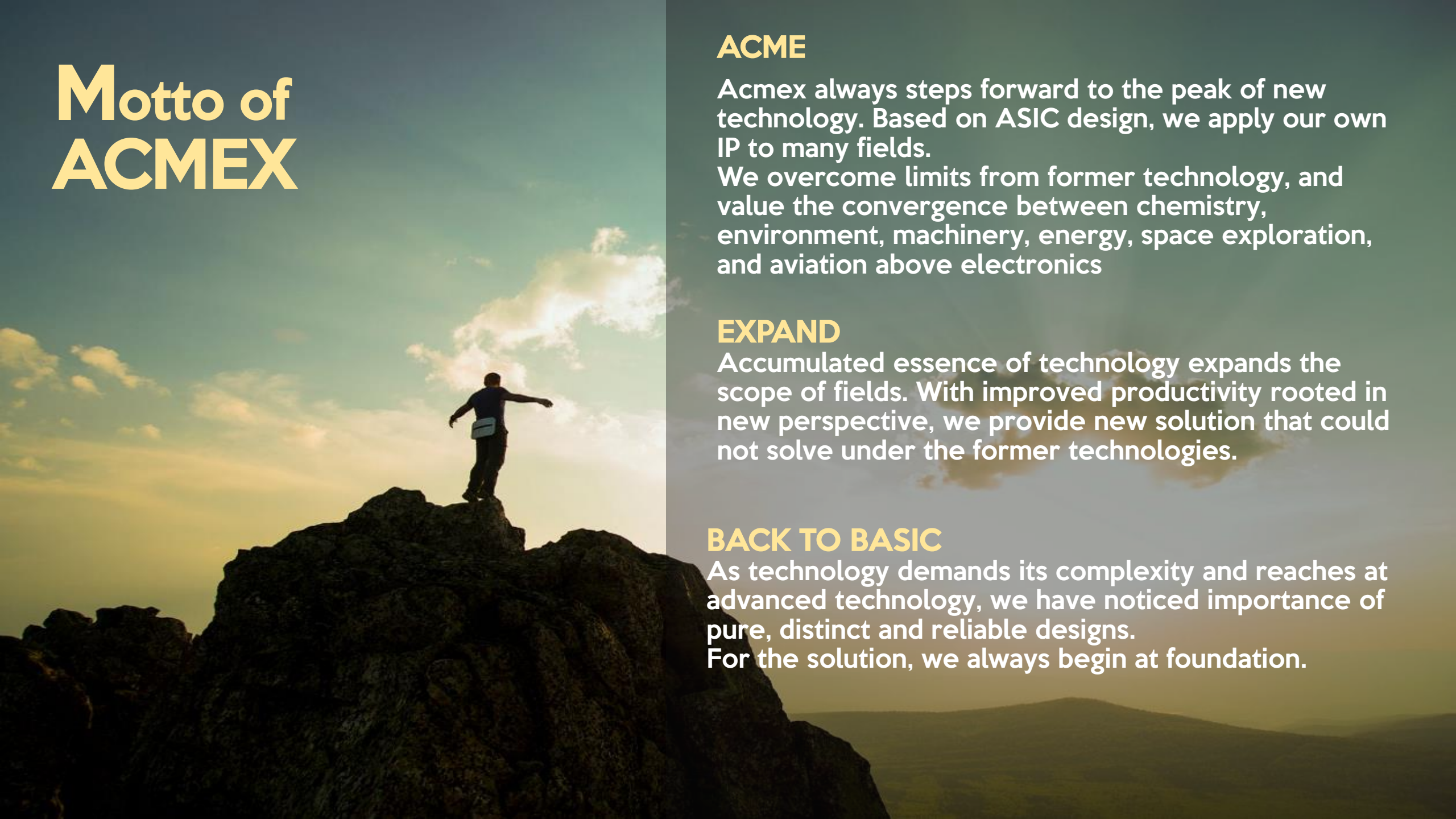
AMX85X2 Series

Contents

Power
Connectivity

1.Company Profile

Motto of ACMEX



ACME

Acmex always steps forward to the peak of new technology. Based on ASIC design, we apply our own IP to many fields.
We overcome limits from former technology, and value the convergence between chemistry, environment, machinery, energy, space exploration, and aviation above electronics

EXPAND

Accumulated essence of technology expands the scope of fields. With improved productivity rooted in new perspective, we provide new solution that could not solve under the former technologies.

BACK TO BASIC

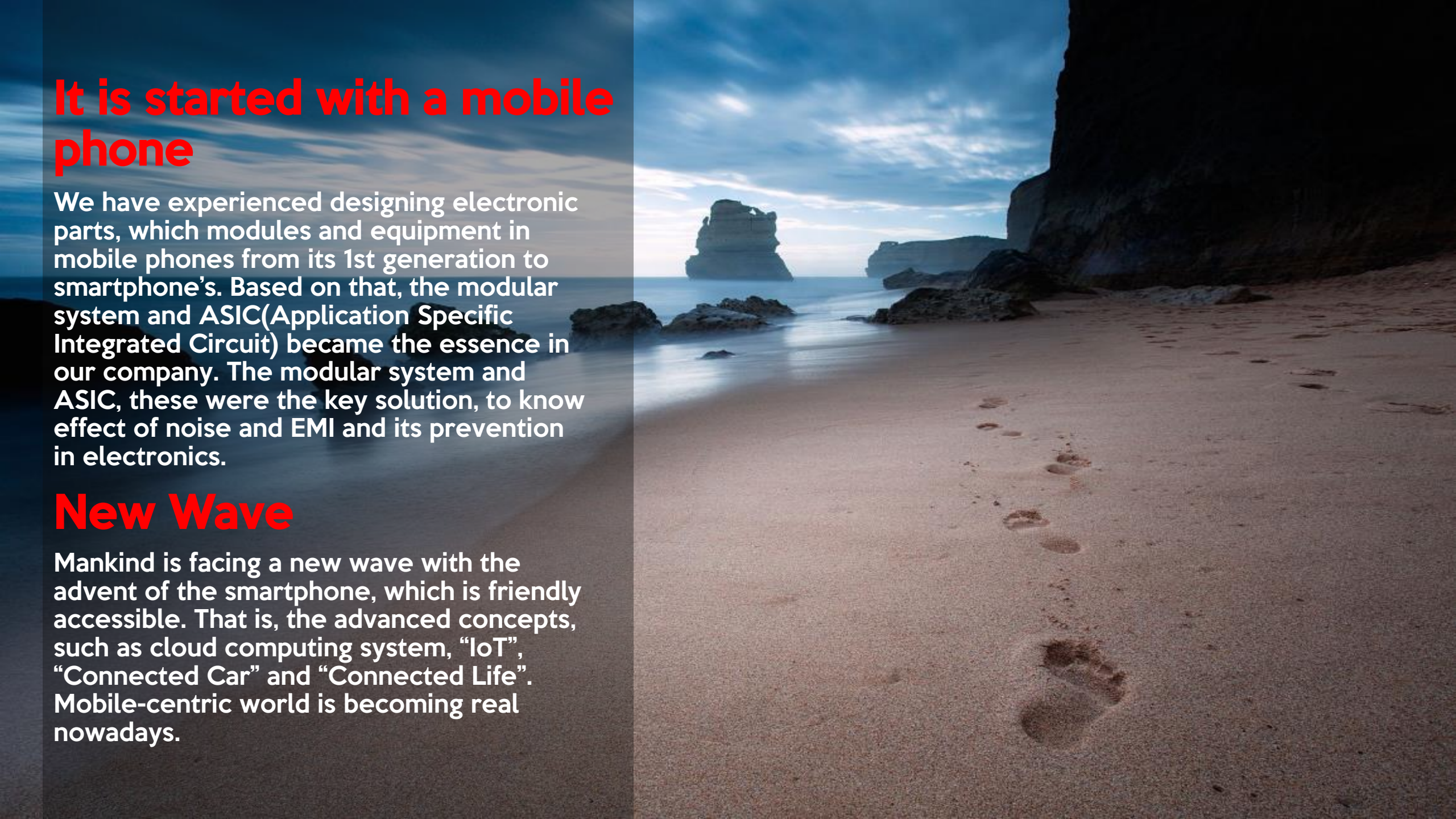
As technology demands its complexity and reaches at advanced technology, we have noticed importance of pure, distinct and reliable designs.
For the solution, we always begin at foundation.

It is started with a mobile phone

We have experienced designing electronic parts, which modules and equipment in mobile phones from its 1st generation to smartphone's. Based on that, the modular system and ASIC(Application Specific Integrated Circuit) became the essence in our company. The modular system and ASIC, these were the key solution, to know effect of noise and EMI and its prevention in electronics.

New Wave

Mankind is facing a new wave with the advent of the smartphone, which is friendly accessible. That is, the advanced concepts, such as cloud computing system, "IoT", "Connected Car" and "Connected Life". Mobile-centric world is becoming real nowadays.



Fusion and Distinction

As the process of hybrid and expanding volume and elaborate controls is intensified, the components and their complexity are going bigger, so that noise and crashing between parts must be increased. This causes unexpected problem against original design.

The high-tech industry requires the product, which is reliable, refined, highly graded and distinctive. This is very essential when you come into the production or design.

We always have focused on noise and problems of EMI, and here, we offer a new solution to you for matter of noise that never solved through the entire industry.

Development of electronic fuel pump relay

In 2010, Daelim Honda(presently known as Daelim Motor) had engine problems on new car model, and Sun Hybrid straightly noticed that this is a result of noise and EMI in the system. This is why we developed a new PCB type product, called SHB2070-20A.

With this product, we had provided relays in last five years in Daelim applied by “Pin-to-Pin module” through the semiconductor circuit system instead of simple SSR.
It shows you Sun Hybrid’s unique technology that can survive in any condition.

Diversified and Economically Friendly

In many years of field confirmation, SHB2070 has been proved as stability and performance. Now, the new product is nearly complete; this new series(tentatively named “AMX85X2”) has one module system and includes 20A,30A, 60A and even 90A.
This launch will bring a new sensation for semiconductor market over 20A that we define as Power connectivity, and create a synergy with entire industry above car manufacture, such as home electronic appliances, ship, space air, heavy equipment and mechanic.

Sun Hybrid

2017. 01-Now

- Establishment of Acmex co., ltd. (separate from Sun hybrid)
- Start to produce 20~90A Power connectivity(SoC)

2012. 05 -2016

- Started to design 20A-90A Power connectivity(SoC) for car

2012. 01-Now

▪ Supply contract has approved officially from Daelim & certified a sub-contractor as a 1st vendor by Daelim.

VJF250Z

VL250(DAYSTAR250)

SV250(Q3)
SV125B(Q2Dynamic)

CA110V(Citi Ace Ⅱ)
CA110VD(Citi Ace Smart)

CA110S(Citi Ace Ⅱ Economic)
CA110SD(Citi Ace Economic Smart)

2010.10-2011.12

▪ Daelim had field test 20A Power connectivity products(1,000 pcs) for 12 months

2010.10

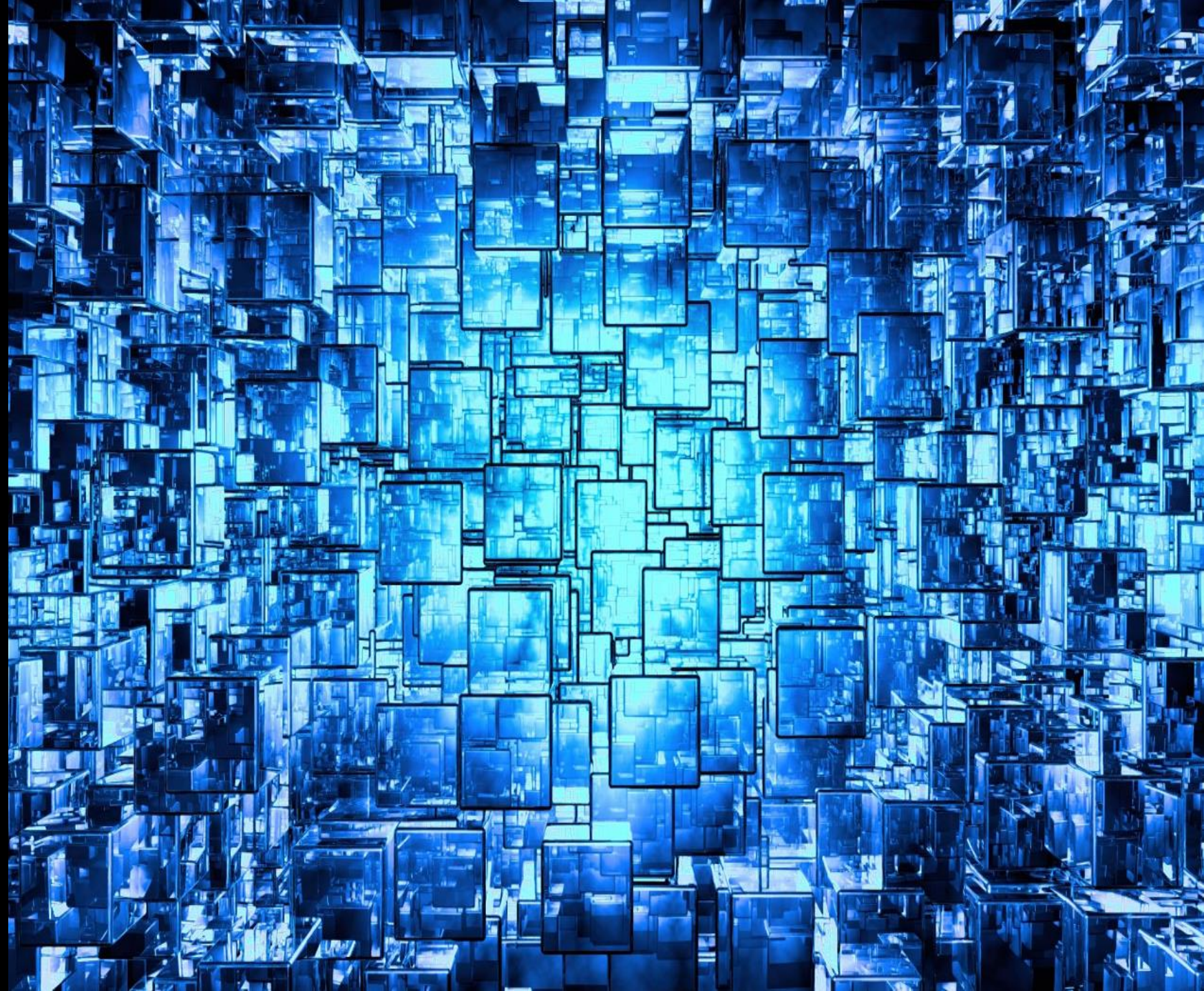
▪ 20A Power connectivity(Engine Fuel Control) Passed Dalim-honda internal test for 6 months

2010.05

- Developed 20A Power connectivity(Electronic Relay Module) for Daelim-honda Automotive (SoC & PCB Type)
- " No EMI, No Noise "

Power
Connectivity

2. Power Connectivity



We provide Power-connectivity solution based on Application Specific Integrated Circuit.

Power-connectivity, the system which is miniaturized and integrated and much powerful and efficient that can follow various demands in the world.

Our Power-connectivity solution breaks the limits from old circuits, and again, you will have satisfaction on its efficiency and stability.

Power
Connectivity

Chip Design
(20A,30A,60A,90A)
ASIC

Power Connectivity ? “Smart High-side Power Analog Switching Device”

Electronic power switch
Relay
Controller

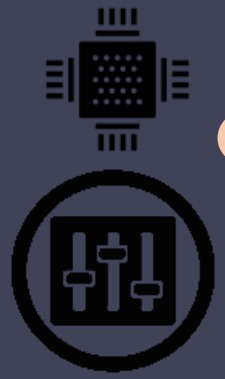
Heavy current
(More than 20A)

More accuracy control

Lightening
Compact design

No Noise

No EMI

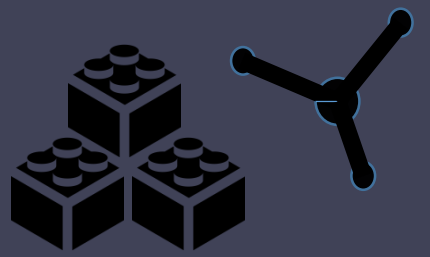


Controller

Power management

Design Realm

PCB



Passive Components

Power
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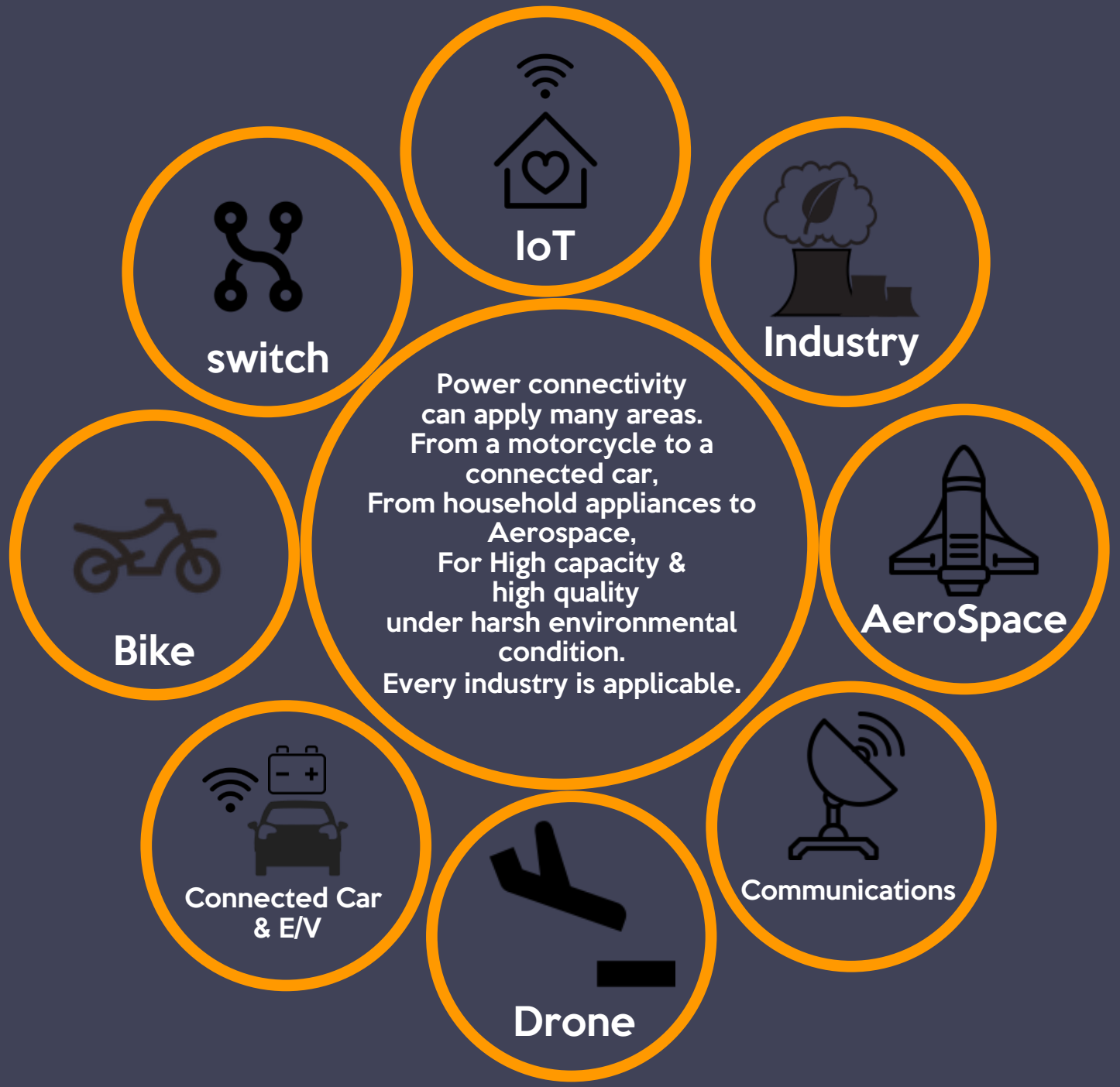
Application area

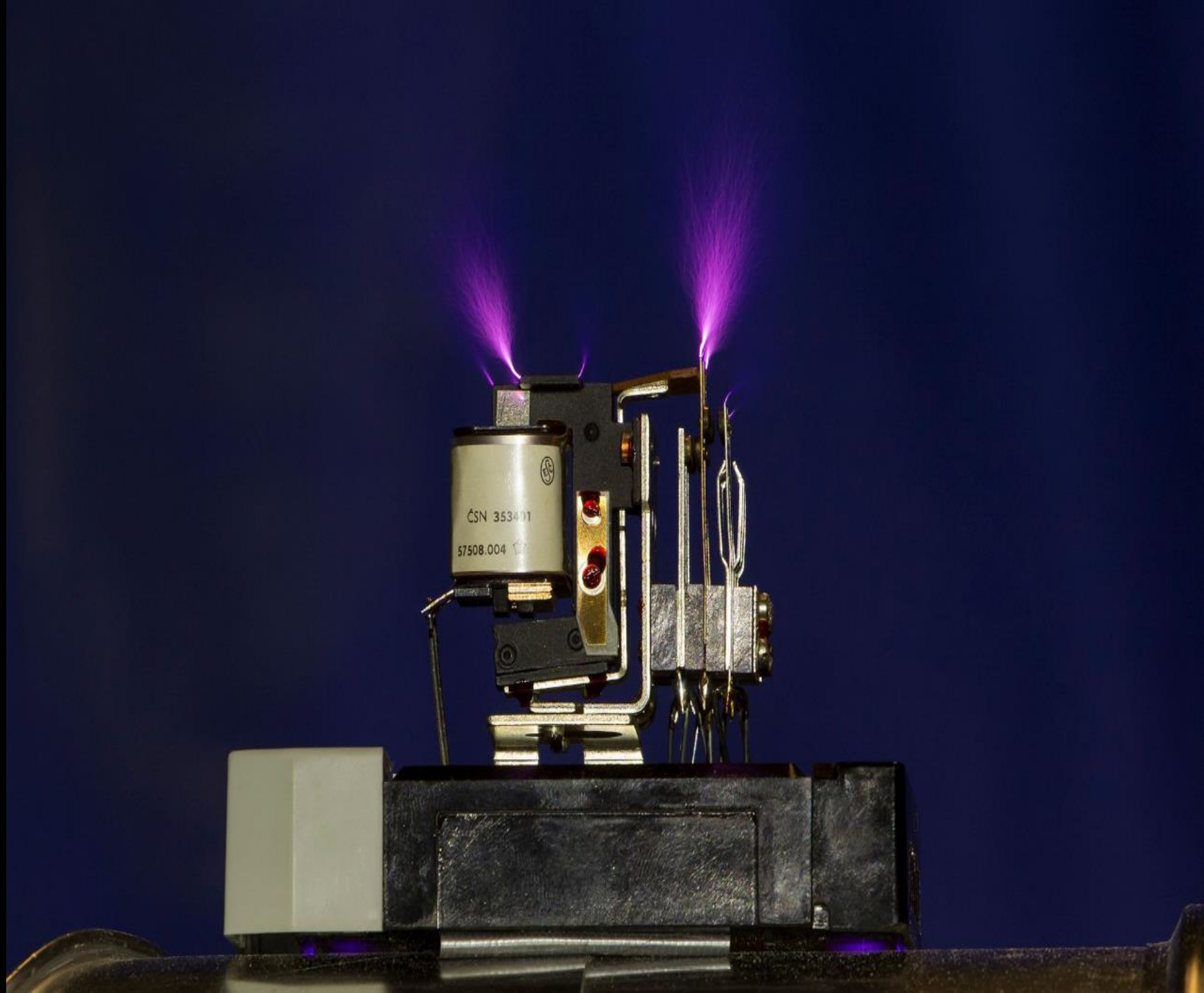


Our own IP

Analog IP	SoC / Digital IP	Driver IC
➢ Voltage Reference Circuit (BGR : Band-Gap Reference) ➢ Current Reference Circuit ➢ Temperature Compensation ➢ Temperature Measurement ➢ CMOS OPAMP ➢ Bias Circuit ➢ Power Circuit, Management ➢ DC-DC Converter (Booster) ➢ ADC, DAC ➢ Frequency Adjustable OSC ➢ Programmable Gain AMP (PGA) ➢ Anti-Aliasing Filter (AAF)	➢ High Speed/Low power SRAM ➢ Image enhancement Algorithm for OLED ➢ IEP (Image Enhancement Processor) ➢ MPE (Moving Picture Enhancement) ➢ Interfaces & Control Circuits for Driver IC ➢ Trimming Circuit (OTP/MTP) ➢ Serial Interface (SPI) ➢ Control SoC consist of MCU (Micro-Controller Unit),CPU(licensed IP), RAM, ROM, INTC, Timer, ADC, OSC, GPIO, LCD Driver.	➢ AM-OLED Driver IC ➢ Mobile TFT-LCD Driver IC ➢ PM-OLED Driver IC ➢ Color STN-LCD Driver IC ➢ MSTN, TN LCD Driver IC ➢ LED Driver IC ➢ AC Power Driver IC

Power
Connectivity

3. Product & Application
   Example Case



Our product
SHB2070(20A)

Equivalent Spec Solenoid Relay

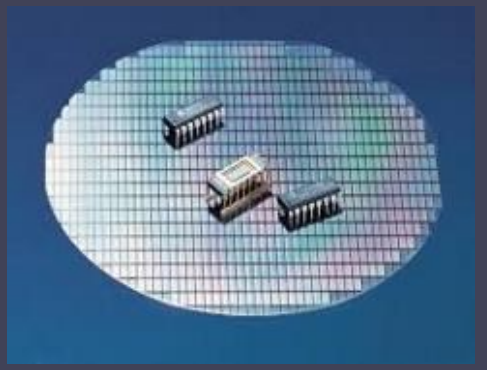
Fitment List:

Sachs Limbo 25 MA (1995-1996)
Sachs Limbo 25 MA Basic (1997)
Sachs Limbo 25 SA (1998-2000)
Sachs Limbo 50 LM (1997)
Sachs Limbo 50 M (1995-1997)
Sachs Reggae 50 (1994-1997)
Sachs Reggae 50 RS (1996-1997)
Sachs Splinter 50 (1994-1997)
Sachs Squab 50 (1996)
Sachs Squab 50 Junior (1997)
SYM Citycom 125 (2009-2011)
SYM Citycom 300 i (2009-2011)
SYM GTS 125 Joymax (2005-2009)
SYM GTS 250 (2005-2008)
SYM GTS 250 Evo i (2009)
SYM HD 125 Evo (2009-2011)
SYM Jet Euro-X 100 (2005-2007)
SYM Joyride 125 Evo (2010-2011)
SYM Joyride 200 (2005-2007)
SYM Mio 100 (2006-2008)
SYM Quad Lander 200 (2010)
SYM Quad Lander 200 TrackRunner (2005-2009)
SYM Quad Lander 250 (2005-2010)
SYM Quad Lander 300 (2007-2009)
SYM Quad Lander 300 S (2010-2011)

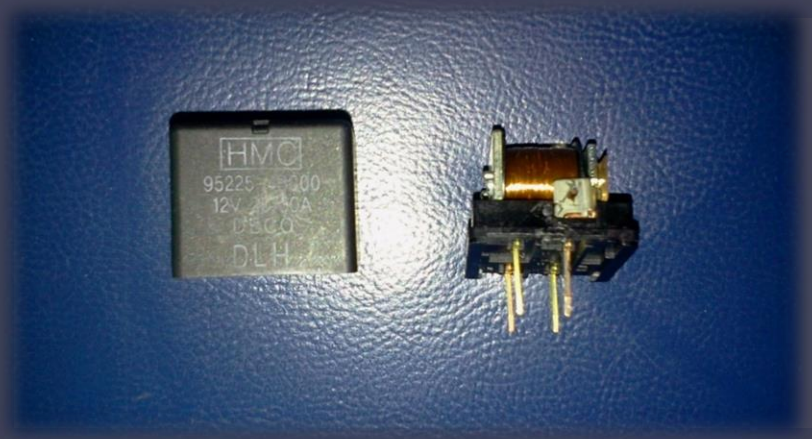
SHB2070 specifications

Features

- Overload protection
- Current limitation
- Short circuit protection
- Over temperature protection
- Over voltage protection (including load dump)
- Clamp of negative voltage at output
- Diagnostic feedback with load current sense
- Open load detection via current sense
- Electrostatic discharge (ESD) protection



Comparison: Application of a substitute product



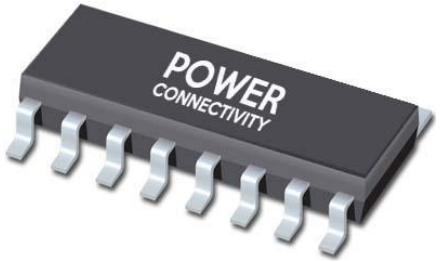
Common Relay

- Using coil
- Limited life cycle
- EMI problem
- Noise problem

SHB2070 Power connectivity

- Using Semiconductor circuit & PCB
- Semi-permanent Life Cycle
- No EMI
- No Noise
- Using Special Passive components

Comparative advantage



Usage of electronic control modules along with electronic components has consequently generated the need for smaller relays capable of carrying high current loads

- The market size is CAGR of 6%
- Pin to Pin method is applied in 20% After Market of Embeded Market

SHB2070 Fitment List

Part No. 38500-CB4-4000

CA110S(Citi Ace Ⅱ Economic)
CA110SD(Citi Ace Economic Smart)

SV250(Q3)
SV125B(Q2Dynamic)

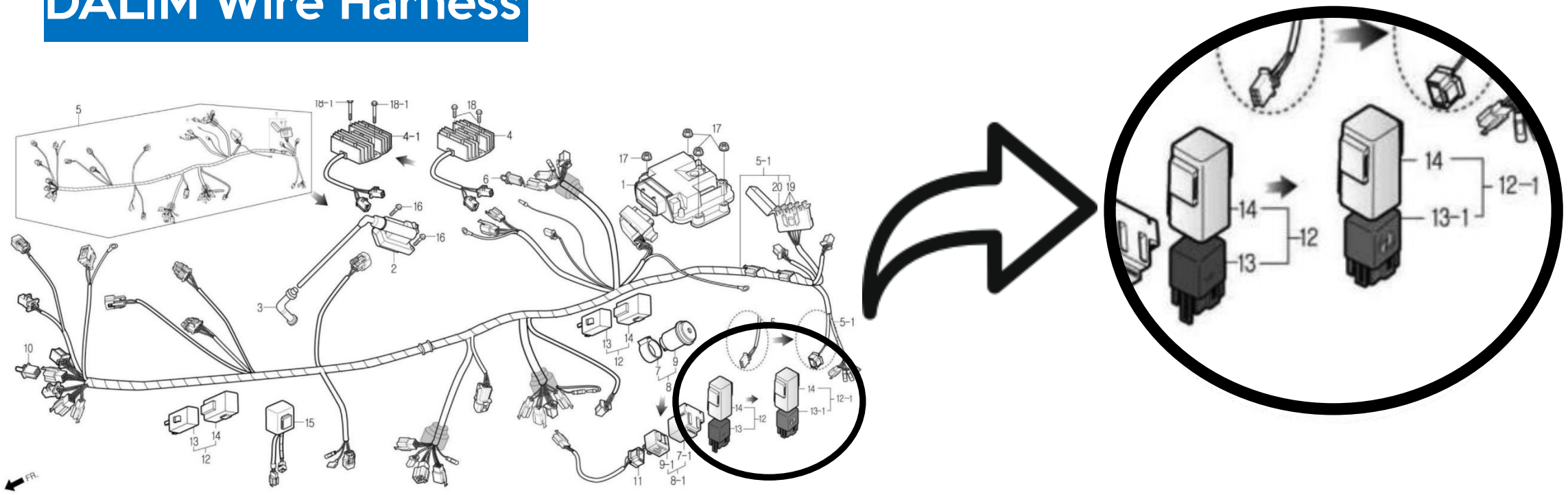
CA110V(Citi Ace Ⅱ)
CA110VD(Citi Ace Smart)

VL250(DAYSTAR250)

Part No. 38501-CB4-4000

VJF250Z

DALIM Wire Harness



Ref No.	부품번호	영문부품명	부 품 명	수량	공급	호환	시작일
12	38500-BA4-0010	RELAY ASS'Y, LIGHT	라이트 릴레이 앗세이	3	Y	Y	20090618
	38500-BA4-0010	RELAY ASS'Y, LIGHT	라이트 릴레이 앗세이	2	Y		20120102
12-1	38500-CB4-4000	RELAY ASS'Y, FUEL PUMP	휴엘 펌프 릴레이 앗세이	1	Y		20120102
13	38501-SE6-9810	RELAY COMP., START	스타트 릴레이 콤프	3	N	Y	20090618
	38501-SE6-9810	RELAY COMP., START	스타트 릴레이 콤프	2	N		20120102
13-1	38501-CB4-4000	RELAY COMP., FUEL PUMP	휴엘 펌프 릴레이 콤프	1	N		20120102

Technical Comparison

Data from Dalim(Honda)

classification / Item	Power connectivity SHB2070	Omron(Japan)	Bosch(German)	Taiwan/China
Capacity	20V/30A	20V/30A	20V/30A	20V/30A
Employ(12V/24V)	12/24V	12/24V	12/24V	12/24V
Exiting current	max.20~30mA	max.100~200mA	max.100~200mA	max.100~200mA
Anti-shock	Semi-permanent	KS R 1034 1류 B종	KS R 1034 1류 B종	KS R 1034 1류 B종
Durability	Semi-permanent	Limited	Limited	Limited
EMI/noise	ZERO	n/a	n/a	n/a
Life cycle	Semi-permanent	limited	Limited	limited

Power Connectivity

5. Technology Roadmap

Developing Road Map

Lev 1

20A
PCB
&
Commercialization

(2010~2015)

Lev 2

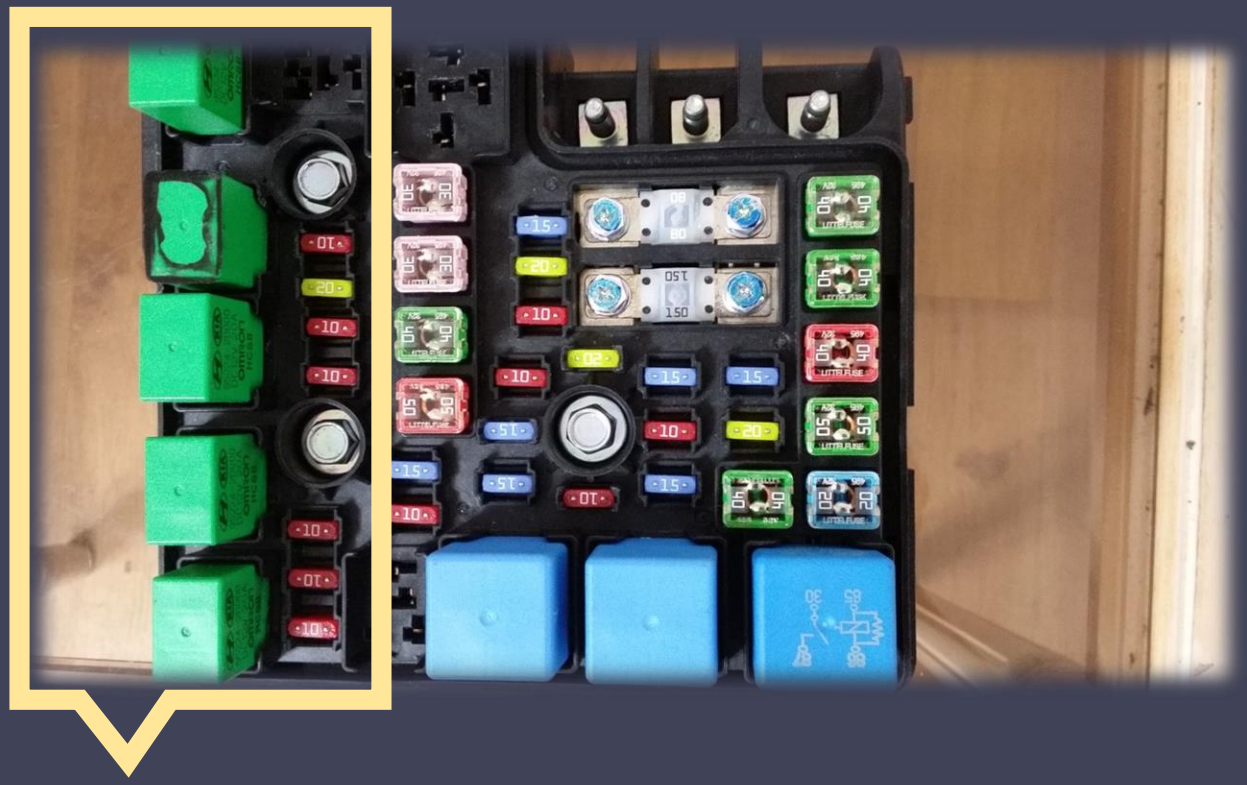
20~90A
SoC
&
Mass production

(2016~3rd Quarter 2017)

Lev 3

5~10A
White Goods
&
40V/360A
360V/400A
E/V Module
(4th Quarter 2017~)

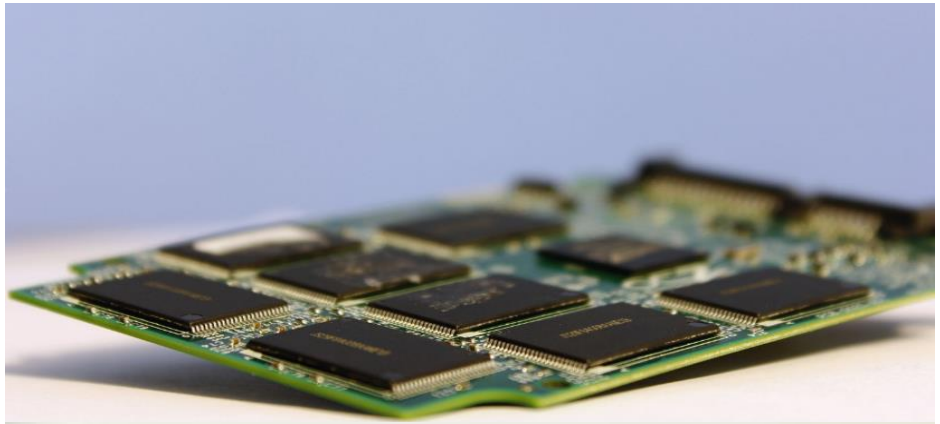
Power connectivity for car



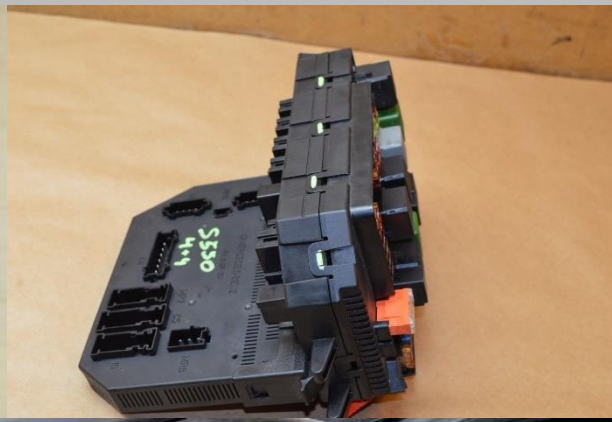
Application for Hyundae Mortors 2014 Avante Control Box(2011 developed)

- Using Omron case, Applying Power connectivity Application
- No EMI
- 20 sets tested

Integrated Module box for E/V & Connected car(Target for 2020)



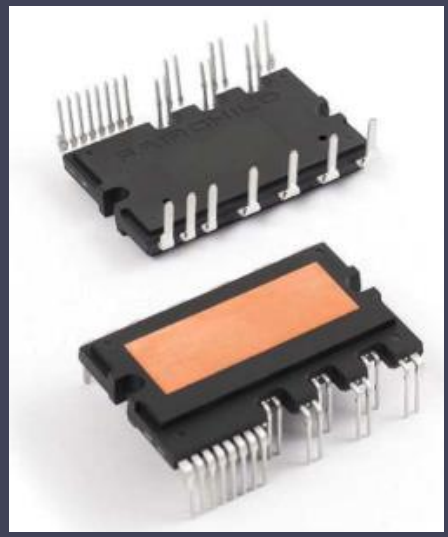
Common Relay & Fuse box for Car



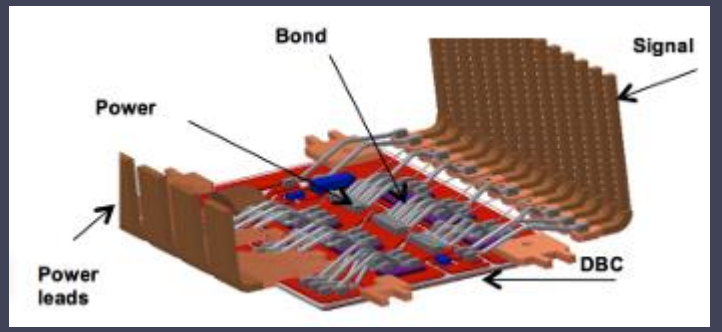
ACMEX Power Connectivity Module

Under Developing Project

ACMEX Power Connectivity Module will be an advanced power management system providing high-side and high-performance auxiliary inverter for hybrid and electric vehicle. These modules integrate optimized gate drive of the built-in our ACM85X2 technology to minimize EMI, while also protecting various features, and compacter than other products.



- 40V-360A 3 phase MOSFET module for Automotive with low loss and high-speed for motor control applications
- 360V-400A Relay Device
- Integrated gate drivers, under voltage lockout, Over-current shutdown, Temperature Sensing unit and Fault reporting
- Automotive qualified (AEC-Q100)



Power
Connectivity

5. New Product AMX85X2

AMX8532

AMX8562

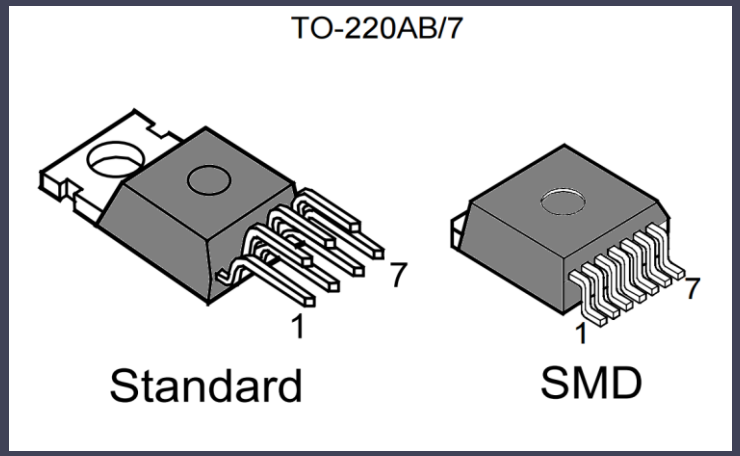
AMX8592

AMX8532

30A 24V Smart Analog Power Switch

Features

- Overload protection
- Current limitation
- Short circuit protection
- Overtemperature protection
- Overvoltage protection
- Diagnostic feedback with load current sense
- Open load detection via current sense
- Electrostatic discharge (ESD) protection
- Bridge diode rectified input (free input direction)



Application

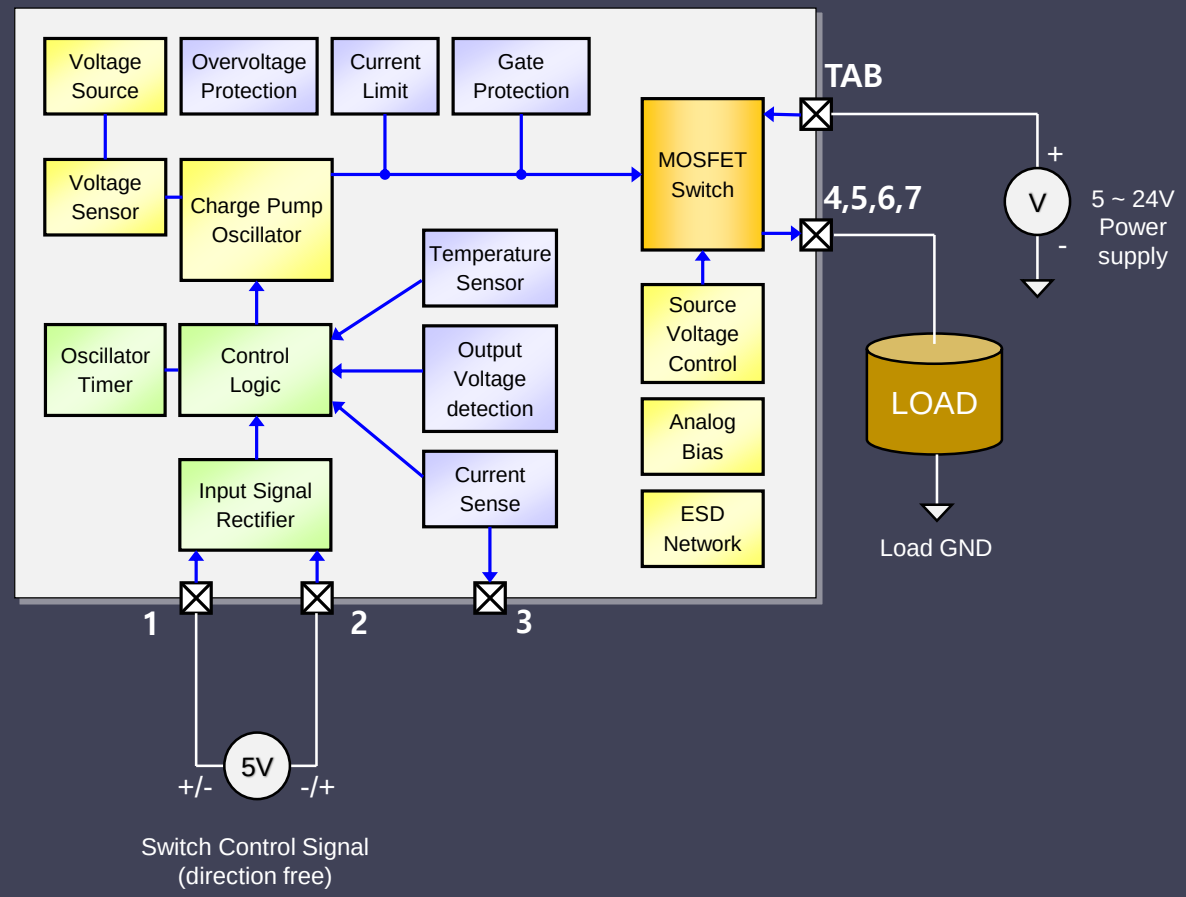
- Power switch with current sense diagnostic feedback for 12V and 24V DC grounded loads
- Most suitable for loads with high inrush current like lamps and motors; all types of resistive and inductive loads
- Replaces electromechanical relays, fuses and discrete circuits

General Description

N channel power MOSFET with charge pump, bridge diode rectified input and diagnostic feedback with load current sense, integrated in high performance BCDMOS technology.
Fully protected by embedded protection.

Device Summary			
Operating Voltage	VDD	5.0 … 24	V
Load Current	IL	30	A
On-state Resistance	RON	6.0	mΩ
Short circuit current limitation	ILSC	100	A
Overvoltage protection	VDD(OV)	44	V
Output clamp	VON(CL)	36	V

PIN	Symbol	I/O	Function
1	IN1	I	Switch control signal inputs. Voltage difference between IN1 and IN2 great than 4V then the switch is On.
2	IN2	I	
3	Sense	O	Diagnostic feedback providing a sense current proportional to the load current.
4	OUT	O	Output to the load. The pins 4, 5, 6 and 7 must be shorted with each other.
5			
6			
7			
TAB	VDD	P	Positive power supply voltage,



Maximum Ratings at T_j = 25 °C unless otherwise specified

Symbol	Parameter	Values	Unit
VDD	Supply Voltage	40	V
	Supply Voltage for short circuit protection	30	V
$I_{L(SC)}$	Load current (short circuit current)	Self-limited	A
T_j T_{stg}	Operating temperature range Storage temperature range	-40 … +150 -55 … +150	°C
P_{tot}	Power dissipation (DC), TC ≤ 25 °C	170	W
V_{IN}	Voltage Difference between IN1 and IN2	18	V

Electrical Characteristics

Load Switching Capabilities and Characteristics

Symbol	Parameter and Conditions at Tj = -40 ... +150 °C, Vbb = 12 V unless otherwise specified	Values			Unit
		min	typ	max	
R_{ON}	On-state resistance (Tab to pins 4,5,6,7) I_L = 30 A, Tj = 25 °C : IL = 30 A, Tj = 150 °C : VDD = 6V, IL = 30 A, Tj = 150 °C :	 -- -- --	 TBD TBD TBD	 6.0 TBD TBD	mΩ
I_L	Nominal load current (Tab to pins 4,5,6,7) V_{ON} = 0.2 V, Tc = 85 °C	30	--	--	A
$I_{L(NOM)}$	Nominal load current, device on PCB T_A = 85 °C, T_j ≤ 150 °C, V_{ON} ≤ 0.2 V,	15	18	--	A
$I_{L(MAX)}$	Maximum load current (Tab to pins 1,2,6,7) V_{ON} = 1.8 V, Tc = 25 °C : V_{ON} = 1.8 V, Tc = 150 °C :	 250 150	 -- --	 -- --	A
t_{on} t_{off}	Turn-on time Turn-off time R_L = 1Ω, T_j = 25°C	100 30	-- --	250 100	µs

Electrical Characteristics

Operating Parameters

Symbol	Parameter and Conditions at Tj = -40 ... +150 °C, Vbb = 12 V unless otherwise specified	Values			Unit
		min	typ	max	
VDD	Operating Voltage	5.0	--	24	V
$V_{DIN(u)}$	Undervoltage shutdown	1.5	3.0	4.5	V
$V_{DIN(ucp)}$	Undervoltage start of charge pump	3.0	4.5	6.0	V
$V_{DIN(Z)}$	Overvoltage protection (I_L = 15mA) T_j = -40 °C : T_j = 25 … +150 °C :	 44 42	 -- 46	 -- --	V
$I_{DD(off)}$	Standby current (VIN = 0) T_j = -40 … +25 °C : T_j = +150 °C :	 -- --	 20 30	 30 50	µA

Protection Functions

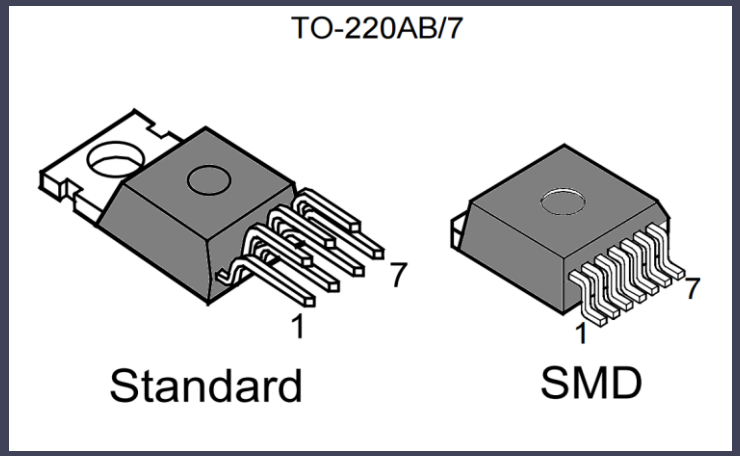
Symbol	Parameter and Conditions at Tj = -40 ... +150 °C, Vbb = 12 V unless otherwise specified	Values			Unit
		Min	typ	max	
$I_{L(sc)}$	Short circuit current limit (Tab to pins 4,5,6,7) VON = 12 V, time until shutdown max. 250 µs Tc =-40°C : Tc =25°C : Tc =+150°C :	 -- -- --	 TBD TBD TBD	 -- 180 --	A
$t_{d(sc)}$	Short circuit shutdown delay after input control (VIN > 4.0V)	--	180	300	µs
$V_{ON(sc)}$	Short circuit shutdown detection voltage	--	6	--	V

AMX8562

60A 24V Smart Analog Power Switch

Features

- Overload protection
- Current limitation
- Short circuit protection
- Overtemperature protection
- Overvoltage protection
- Diagnostic feedback with load current sense
- Open load detection via current sense
- Electrostatic discharge (ESD) protection
- Bridge diode rectified input (free input direction)



Application

- Power switch with current sense diagnostic feedback for 12V and 24V DC grounded loads
- Most suitable for loads with high inrush current like lamps and motors; all types of resistive and inductive loads
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General Description

N channel power MOSFET with charge pump, bridge diode rectified input and diagnostic feedback with load current sense, integrated in high performance BCDMOS technology.
Fully protected by embedded protection.

Device Summary			
Operating Voltage	VDD	5.0 … 24	V
Load Current	IL	60	A
On-state Resistance	RON	3.0	mΩ
Short circuit current limitation	ILSC	200	A
Overvoltage protection	VDD(OV)	44	V
Output clamp	VON(CL)	36	V

PIN	Symbol	I/O	Function
1	IN1	I	Switch control signal inputs. Voltage difference between IN1 and IN2 great than 4V then the switch is On.
2	IN2	I	
3	Sense	O	Diagnostic feedback providing a sense current proportional to the load current.
4	OUT	O	Output to the load. The pins 4, 5, 6 and 7 must be shorted with each other.
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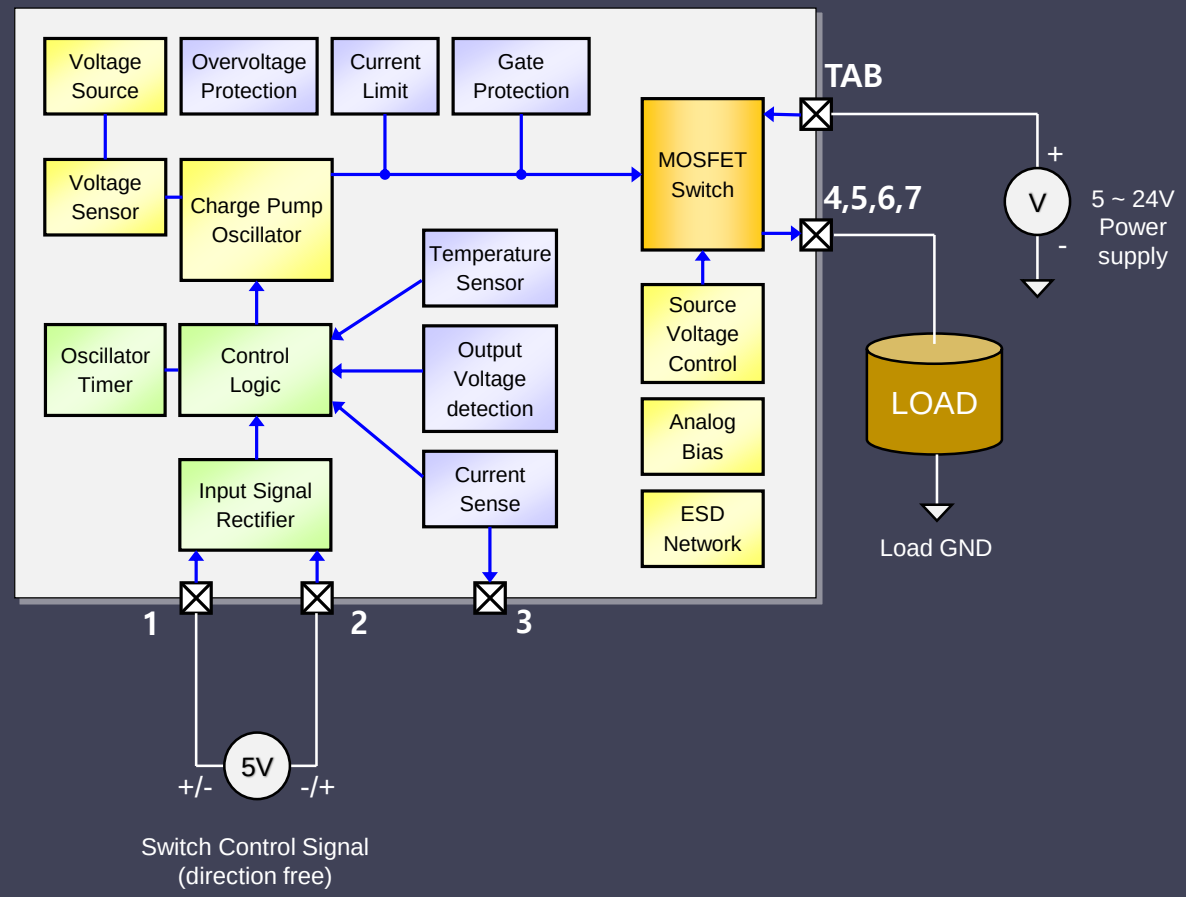
TAB	VDD	P	Positive power supply voltage,



Maximum Ratings at T_j = 25 °C unless otherwise specified

Symbol	Parameter	Values	Unit
VDD	Supply Voltage	40	V
	Supply Voltage for short circuit protection	30	V
$I_{L(SC)}$	Load current (short circuit current)	Self-limited	A
T_j T_{stg}	Operating temperature range Storage temperature range	-40 … +150 -55 … +150	°C
P_{tot}	Power dissipation (DC), TC ≤ 25 °C	250	W
V_{IN}	Voltage Difference between IN1 and IN2	18	V

Electrical Characteristics

Load Switching Capabilities and Characteristics

Symbol	Parameter and Conditions at Tj = -40 ... +150 °C, Vbb = 12 V unless otherwise specified	Values			Unit
		min	typ	max	
R_{ON}	On-state resistance (Tab to pins 4,5,6,7) I_L = 30 A, Tj = 25 °C : IL = 30 A, Tj = 150 °C : VDD = 6V, IL = 30 A, Tj = 150 °C :	 -- -- --	 TBD TBD TBD	 3.0 TBD TBD	mΩ
I_L	Nominal load current (Tab to pins 4,5,6,7) V_{ON} = 0.2 V, Tc = 85 °C	60	--	--	A
$I_{L(NOM)}$	Nominal load current, device on PCB T_A = 85 °C, T_j ≤ 150 °C, V_{ON} ≤ 0.2 V,	30	36	--	A
$I_{L(MAX)}$	Maximum load current (Tab to pins 1,2,6,7) V_{ON} = 1.8 V, Tc = 25 °C : V_{ON} = 1.8 V, Tc = 150 °C :	 400 200	 -- --	 -- --	A
t_{on} t_{off}	Turn-on time Turn-off time R_L = 1Ω, T_j = 25°C	100 30	-- --	250 100	µs

Electrical Characteristics

Operating Parameters

Symbol	Parameter and Conditions at Tj = -40 ... +150 °C, Vbb = 12 V unless otherwise specified	Values			Unit
		min	typ	max	
VDD	Operating Voltage	5.0	--	24	V
$V_{DIN(u)}$	Undervoltage shutdown	1.5	3.0	4.5	V
$V_{DIN(ucp)}$	Undervoltage start of charge pump	3.0	4.5	6.0	V
$V_{DIN(Z)}$	Overvoltage protection (I_L = 15mA) T_j = -40 °C : T_j = 25 … +150 °C :	 44 42	 -- 46	 -- --	V
$I_{DD(off)}$	Standby current (VIN = 0) T_j = -40 … +25 °C : T_j = +150 °C :	 -- --	 25 40	 40 65	µA

Protection Functions

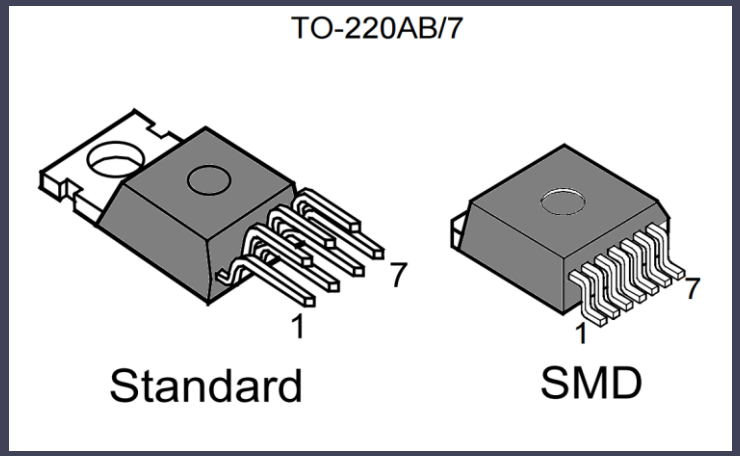
Symbol	Parameter and Conditions at Tj = -40 ... +150 °C, Vbb = 12 V unless otherwise specified	Values			Unit
		Min	typ	max	
$I_{L(sc)}$	Short circuit current limit (Tab to pins 4,5,6,7) VON = 12 V, time until shutdown max. 250 µs Tc =-40°C : Tc =25°C : Tc =+150°C :	 -- -- --	 TBD TBD TBD	 -- 280 --	A
$t_{d(sc)}$	Short circuit shutdown delay after input control (VIN > 4.0V)	--	180	300	µs
$V_{ON(sc)}$	Short circuit shutdown detection voltage	--	6	--	V

AMX8592

90A 24V Smart Analog Power Switch

Features

- Overload protection
- Current limitation
- Short circuit protection
- Overtemperature protection
- Overvoltage protection
- Diagnostic feedback with load current sense
- Open load detection via current sense
- Electrostatic discharge (ESD) protection
- Bridge diode rectified input (free input direction)



Application

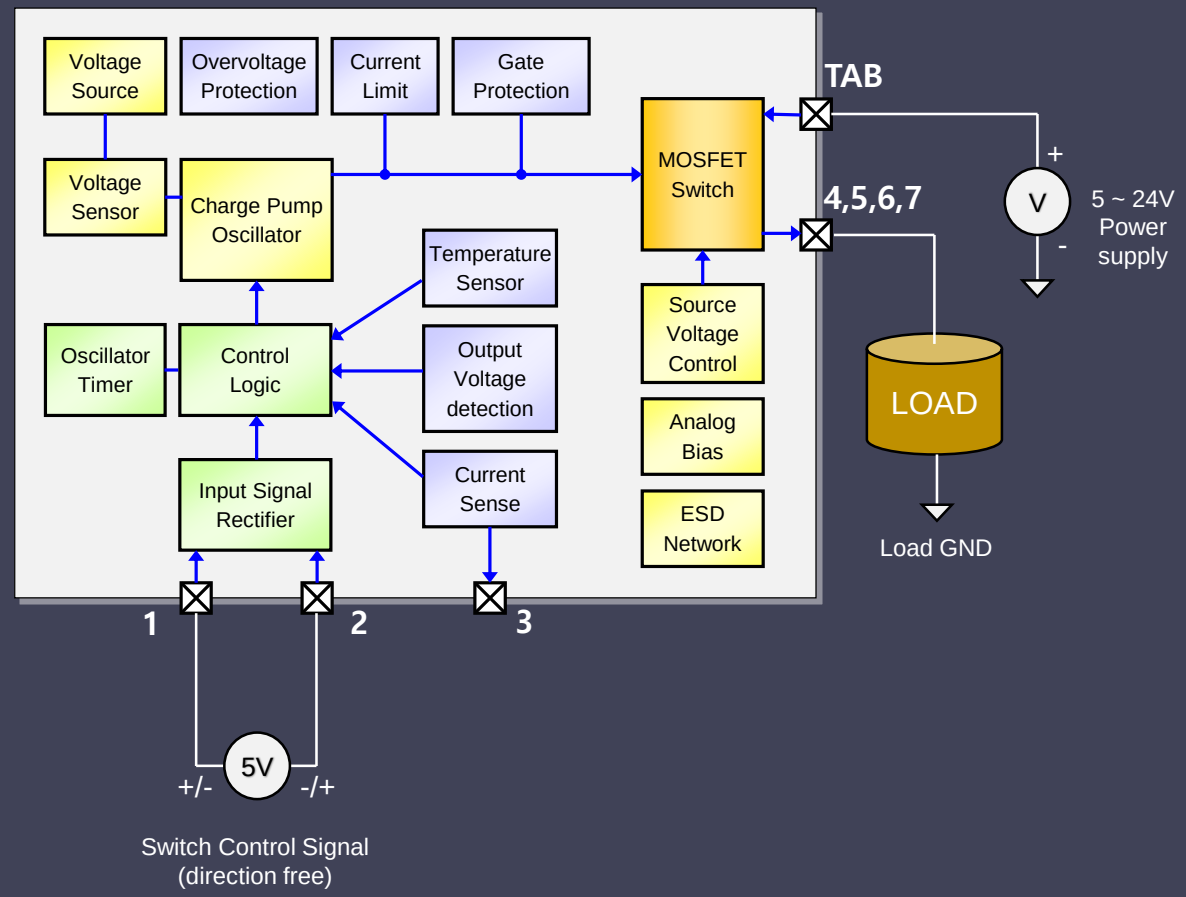
- Power switch with current sense diagnostic feedback for 12V and 24V DC grounded loads
- Most suitable for loads with high inrush current like lamps and motors; all types of resistive and inductive loads
- Replaces electromechanical relays, fuses and discrete circuits

General Description

N channel power MOSFET with charge pump, bridge diode rectified input and diagnostic feedback with load current sense, integrated in high performance BCDMOS technology.
Fully protected by embedded protection.

Device Summary			
Operating Voltage	VDD	5.0 … 24	V
Load Current	IL	90	A
On-state Resistance	RON	2.0	mΩ
Short circuit current limitation	ILSC	300	A
Overvoltage protection	VDD(OV)	44	V
Output clamp	VON(CL)	36	V

PIN	Symbol	I/O	Function
1	IN1	I	Switch control signal inputs. Voltage difference between IN1 and IN2 great than 4V then the switch is On.
2	IN2	I	
3	Sense	O	Diagnostic feedback providing a sense current proportional to the load current.
4	OUT	O	Output to the load. The pins 4, 5, 6 and 7 must be shorted with each other.
5			
6			
7			
TAB	VDD	P	Positive power supply voltage,



Maximum Ratings at T_j = 25 °C unless otherwise specified

Symbol	Parameter	Values	Unit
VDD	Supply Voltage	40	V
	Supply Voltage for short circuit protection	30	V
$I_{L(SC)}$	Load current (short circuit current)	Self-limited	A
T_j T_{stg}	Operating temperature range Storage temperature range	-40 … +150 -55 … +150	°C
P_{tot}	Power dissipation (DC), TC ≤ 25 °C	300	W
V_{IN}	Voltage Difference between IN1 and IN2	18	V

Electrical Characteristics

Load Switching Capabilities and Characteristics

Symbol	Parameter and Conditions at Tj = -40 ... +150 °C, Vbb = 12 V unless otherwise specified	Values			Unit
		min	typ	max	
R_{ON}	On-state resistance (Tab to pins 4,5,6,7) I_L = 30 A, Tj = 25 °C : IL = 30 A, Tj = 150 °C : VDD = 6V, IL = 30 A, Tj = 150 °C :	 -- -- --	 TBD TBD TBD	 2.0 TBD TBD	mΩ
I_L	Nominal load current (Tab to pins 4,5,6,7) V_{ON} = 0.2 V, Tc = 85 °C	90	--	--	A
$I_{L(NOM)}$	Nominal load current, device on PCB T_A = 85 °C, T_j ≤ 150 °C, V_{ON} ≤ 0.2 V,	45	57	--	A
$I_{L(MAX)}$	Maximum load current (Tab to pins 1,2,6,7) V_{ON} = 1.8 V, Tc = 25 °C : V_{ON} = 1.8 V, Tc = 150 °C :	 500 250	 -- --	 -- --	A
t_{on} t_{off}	Turn-on time Turn-off time R_L = 1Ω, T_j = 25°C	100 30	-- --	250 100	µs

Electrical Characteristics

Operating Parameters

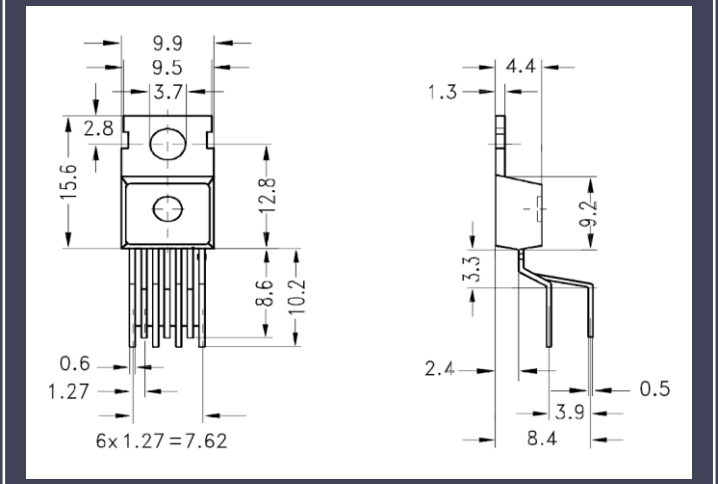
Symbol	Parameter and Conditions at Tj = -40 ... +150 °C, Vbb = 12 V unless otherwise specified	Values			Unit
		min	typ	max	
VDD	Operating Voltage	5.0	--	24	V
$V_{DIN(u)}$	Undervoltage shutdown	1.5	3.0	4.5	V
$V_{DIN(ucp)}$	Undervoltage start of charge pump	3.0	4.5	6.0	V
$V_{DIN(Z)}$	Overvoltage protection (I_L = 15mA) T_j = -40 °C : T_j = 25 … +150 °C :	 44 42	 -- 46	 -- --	V
$I_{DD(off)}$	Standby current (VIN = 0) T_j = -40 … +25 °C : T_j = +150 °C :	 -- --	 30 50	 50 80	µA

Protection Functions

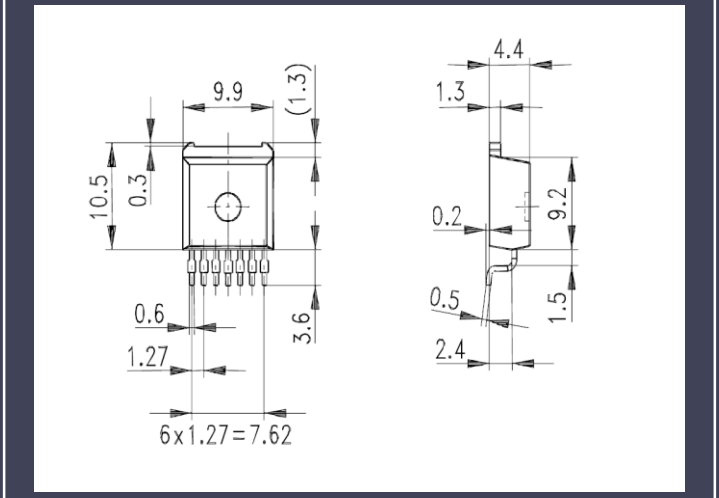
Symbol	Parameter and Conditions at Tj = -40 ... +150 °C, Vbb = 12 V unless otherwise specified	Values			Unit
		Min	typ	max	
$I_{L(sc)}$	Short circuit current limit (Tab to pins 4,5,6,7) VON = 12 V, time until shutdown max. 250 µs Tc =-40°C : Tc =25°C : Tc =+150°C :	 -- -- --	 TBD TBD TBD	 -- 350 --	A
$t_{d(sc)}$	Short circuit shutdown delay after input control (VIN > 4.0V)	--	180	300	µs
$V_{ON(sc)}$	Short circuit shutdown detection voltage	--	6	--	V

Package Information

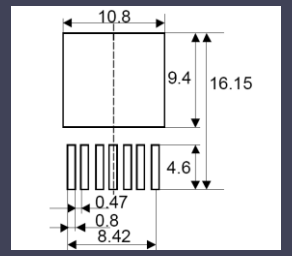
Standard TO220 AB/7



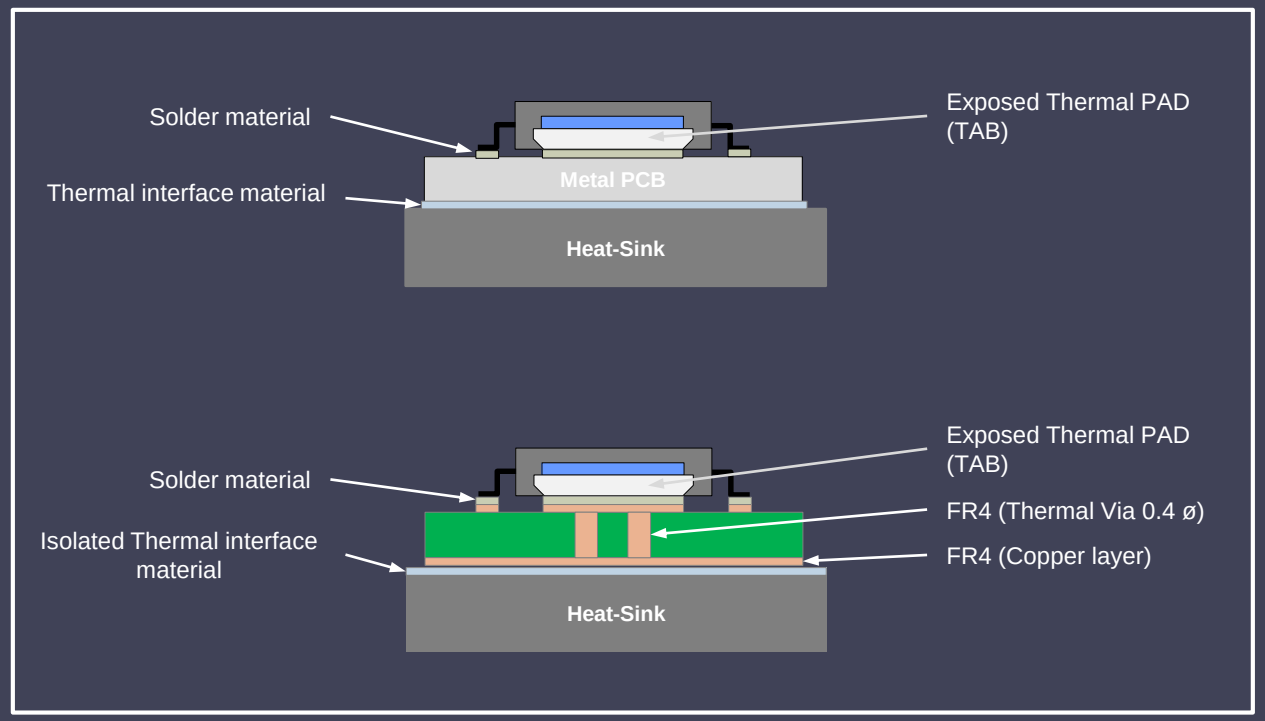
SMD TO220 AB/7



Footprint



Recommended PCB design for proper thermal management



Cross section of PCB: Metal PCB, FR4 with thermal via PCB

The PCB is the most critical factor determining the thermal characteristics of AMX8532. FR4 is the most commonly used material for PCBs, however FR4 has a very low thermal conductivity due to the FR4 dielectric material.

The following method is used to improve the thermal characteristics for an FR4 board by adding thermal vias between the top copper layer and the bottom copper layer.

Better thermal performance can be achieved by using a metal PCB which has a much better thermal conductivity and can improve the thermal dissipation

Marketing Strategy

Domain
the market in advance