



Is Now Part of



ON Semiconductor®

To learn more about ON Semiconductor, please visit our website at
www.onsemi.com

Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (_), the underscore (_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (_). Please check the ON Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.onsemi.com. Please email any questions regarding the system integration to Fairchild_questions@onsemi.com.

ON Semiconductor and the ON Semiconductor logo are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of ON Semiconductor's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using ON Semiconductor products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by ON Semiconductor. "Typical" parameters which may be provided in ON Semiconductor data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. ON Semiconductor does not convey any license under its patent rights nor the rights of others. ON Semiconductor products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use ON Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold ON Semiconductor and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that ON Semiconductor was negligent regarding the design or manufacture of the part. ON Semiconductor is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

KA7552A/KA7553A

SMPS Controller

Features

- Built-in drive circuits for direct connection power MOSFET ($I_O = \pm 1.5A$)
- Wide operating frequency range (5kHz ~ 600kHz)
- Pulse by pulse over current limiting
- Over load protection
- On/off control by external trigger
- Internal UVLO
- Low standby current (typ. 90uA)
- Soft start circuit

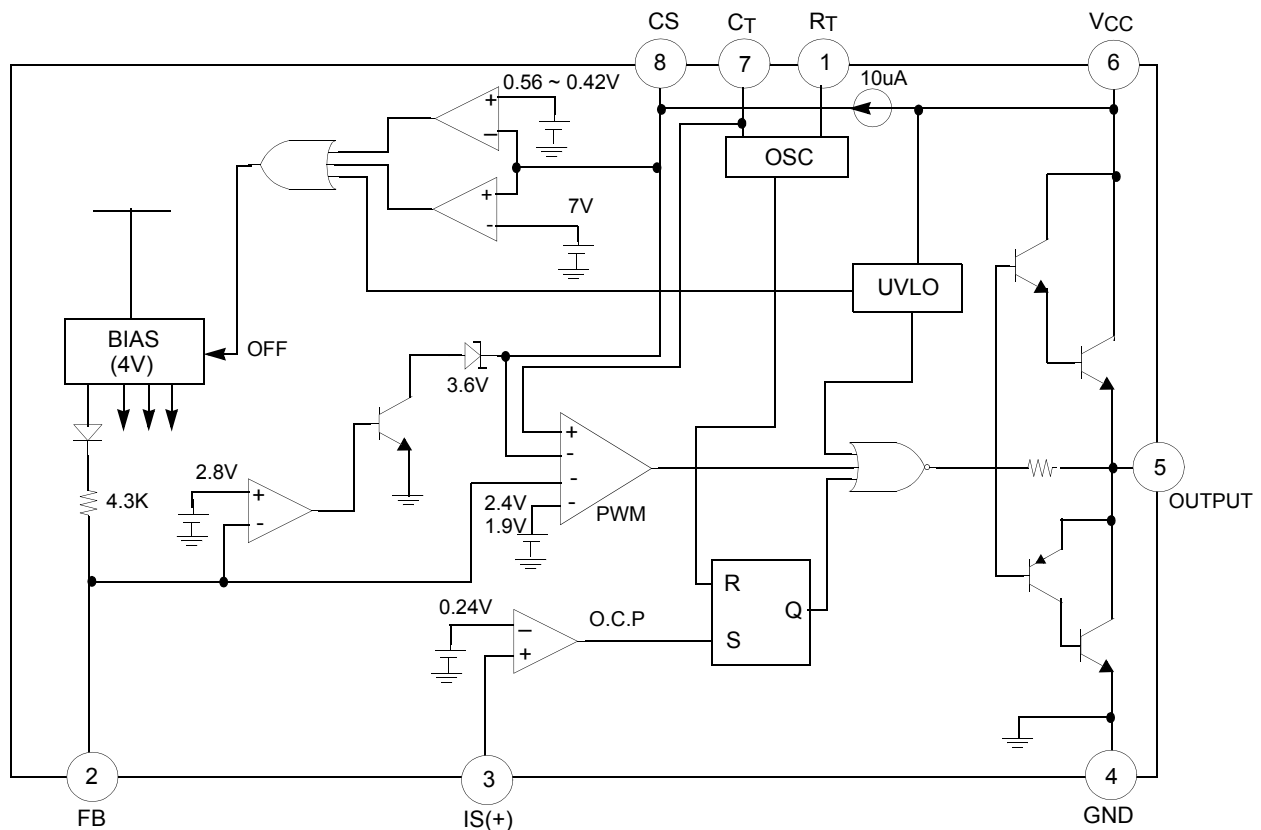
Description

The KA7552A/KA7553A are switching power control IC for wide operating frequency range. The internal circuits include pulse by pulse current limiting, protection, on/off control by external trigger, low standby current, soft start, and high current totempole output for driving a POWER MOSFET. Maximum duty of the KA7552A is 70% and the KA7553A is 46%. When duty is maximum, the input threshold voltage of pin2 & pin8 are not same in KA7552A and KA7553A.

8-DIP



Internal Block Diagram



Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Supply voltage	V _{CC}	30	V
Output current	I _O	±1.5	A
Input voltage at overcurrent detection pin	V _{IN(IS)}	-0.3 to 4	V
Input voltage at FB pin	V _{IN(FB)}	4	V
Input current at CS pin	I _{IN(CS)}	2	mA
Total power dissipation (T _a = 25°C)	P _D	800	mW
Operating temperature	T _{OPR}	-25 to 85	°C
Storage temperature range	T _{STG}	-65 to 150	°C
Junction temperature	T _j	+125	°C

Electrical Characteristics

(V_{CC} = 18V, F_{OSC} = 135kHz, T_A = 25°C, unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
OSCILLATOR SECTION						
Initial accuracy	F _{OSC}	C _T = 360pF, T _J = 25°C	125	135	145	kHz
Frequency variation 1	ΔF/ΔV	V _{CC} = 10V to 30V	-	±1	±3	%
Frequency variation 2 ^(Note1)	ΔF/ΔV	T _A = 25°C to 85°C	-	±1.5	-	%
Ramp high voltage	V _{RH}	C _T = 360pF, T _J = 25°C	2.80	3.08	3.30	V
Ramp low voltage	V _{RL}	C _T = 360pF, T _J = 25°C	0.6	0.9	1.2	V
Amplitude	V _{OSC}	V _{PIN7} , peak to peak	1.80	2.18	2.50	V
PULSE WIDTH MODULATION SECTION						
Input threshold voltage(pin2)	V _{TH(FBD)}	Duty cycle = 0%	0.6	0.75	0.95	V
Input threshold voltage(pin2) ^(Note1)	V _{TH(FB1)} (KA7552)	Duty cycle = D _{max} 1	2.1	2.3	2.6	V
	V _{TH(FB2)} (KA7553)	Duty cycle = D _{max} 2	1.6	1.8	2.1	V
Max. duty cycle	D _(Max1) (KA7552)	-	66	70	74	%
	D _(Max2) (KA7553)	-	43	46	49	%
Source current(pin2)	I _{SOURCE(FB)}	V _{PIN2} = 0V	-660	-800	-960	uA
OVERCURRENT LIMIT SECTION						
Input threshold voltage	V _{TH(IS)}	-	0.21	0.24	0.27	V
Source current(pin3)	I _{SOURCE(IS)}	V _{PIN3} = 0V	-300	-200	-100	uA
Deley time ^(Note1)	T _D	-	-	150	-	ns
SOFT START SECTION						
Charging current	I _{CHG}	V _{PIN8} = 0V	-15	-10	-5	uA
Input threshold voltage(pin8)	V _{TH(CSO)}	-	0.7	0.9	1.1	V
Input threshold voltage(pin8) ^(Note1)	V _{TH(CS1)} (KA7552)	Duty cycle = D _{max} 1	2.2	2.4	2.6	V
	V _{TH(CS2)} (KA7553)	Duty cycle = D _{max} 2	1.7	1.9	2.1	V
LATCH MODE SHUTDOWN CIRCUIT SECTION						
Sink current(pin8)	I _{SINK(CS)}	V _{PIN8} = 6V, V _{PIN2} = 1V	25	45	65	uA
Shutdown threshold voltage	V _{TH(SD,CS)}	-	6.7	7.2	7.7	V
OVERLOAD SHUTDOWN SECTION						
Shutdown threshold voltage	V _{TH(SD,FB)}	-	2.6	2.8	3.1	V

Electrical Characteristics (Continued)

(VCC = 18V, FOSC = 135kHz, TA = 25°C, unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
UNDER VOLTAGE LOCKOUT SECTION						
Start-up threshold voltage	VTH(ST)	-	15.5	16.0	16.5	V
Minimum operating voltage	VOPR(Min)	-	8.20	8.70	9.20	V
Hysteresis	VHYS	-	6.40	7.30	8.20	V
ON/OFF CONTROL SECTION						
Source current(pin8)	ISOURCE(CS)	VPIN8 = 0V	-15	-10	-5	uA
On threshold voltage	VTH(ON)	VPIN8 : OFF->ON	0.45	0.56	0.70	V
Off threshold voltage	VTH(OFF)	VPIN8 : ON -> OFF	0.30	0.42	0.55	V
OUTPUT SECTION						
Low output voltage	VOL	IO = 100mA, VCC = 18V	-	1.3	1.8	V
High output voltage	VOH	IO = -100mA, VCC = 18V	16.0	16.5	18.0	V
Rise time ^(Note1)	TR	No load	-	50	-	ns
Fall time ^(Note1)	TF	No load	-	50	-	ns
OVERALL						
Stand-by current	ISB	VCC = 14V	-	90	150	uA
Operating current	ICC(OPR)	VPIN2 = 0V	-	9	15	mA
Power supply current off	ICC(OFF)	VPIN8 = 0V	-	1.1	1.8	mA
Power supply current shutdown	ICC(SD)	VPIN8 = 7.6V	-	1.1	1.8	mA

Note :

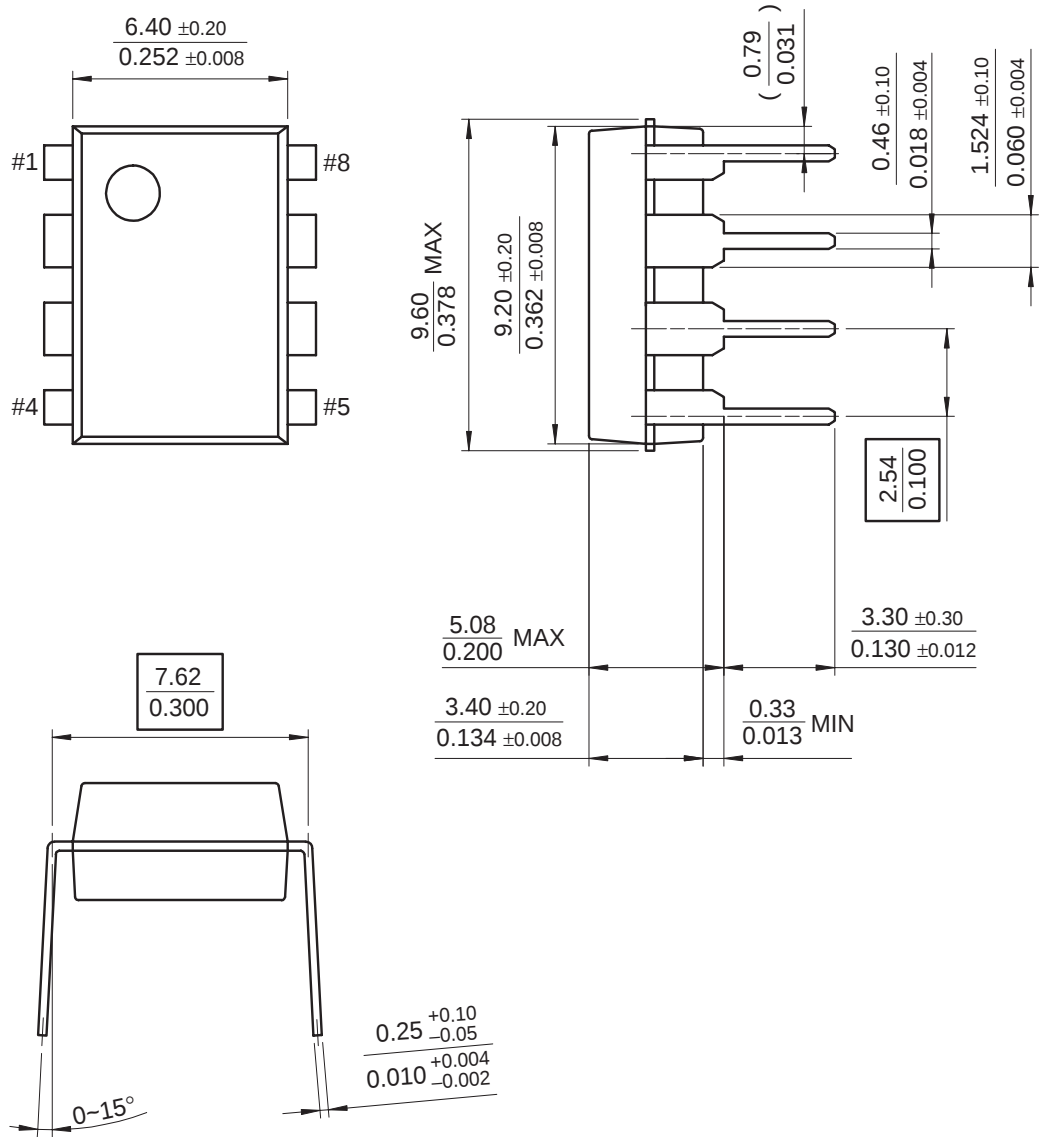
1. These parameters, although guaranteed, are not 100% tested in production.
2. Recommend operating condition :
 - Vcc(min) = 12V
 - RT = 3.3kΩ ~ 10kΩ
 - Oscillation frequency = 5kHz ~ 600kHz
 - Soft start capacitor(Cs) = 0.1uF ~ 1uF

Mechanical Dimensions

Package

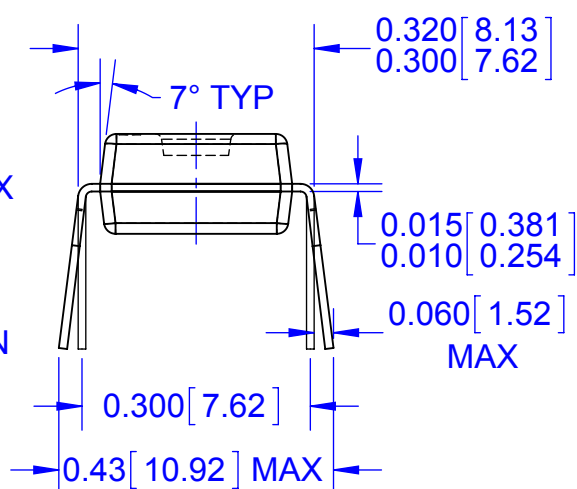
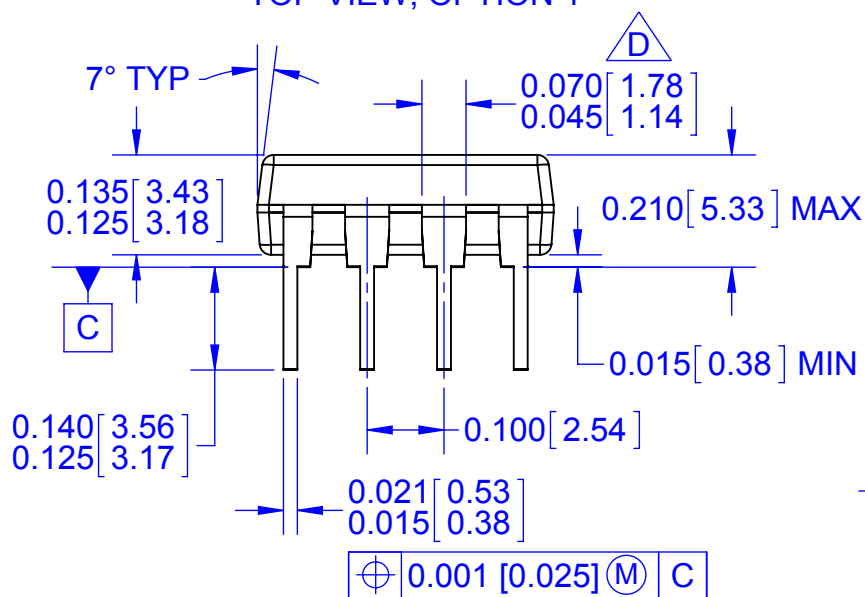
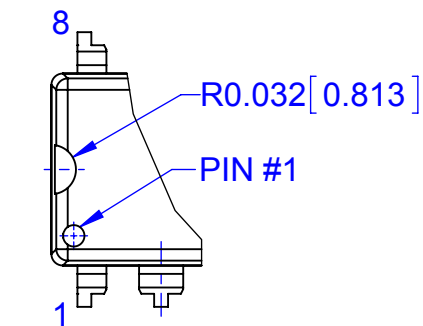
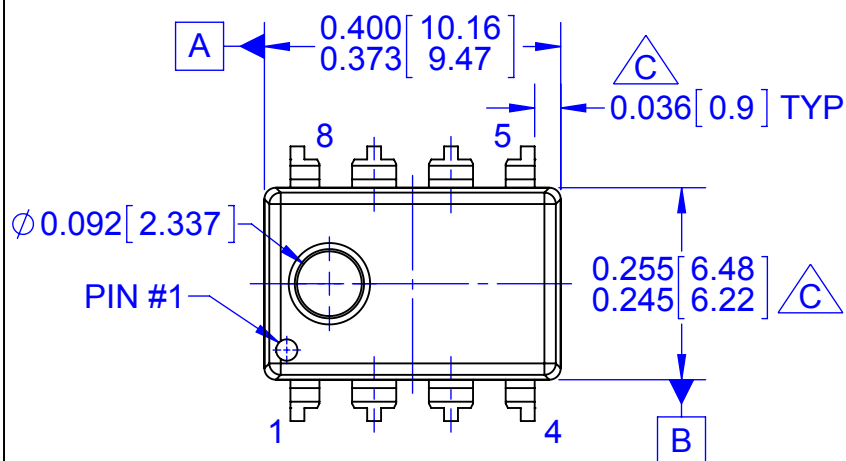
Dimensions in millimeters

8-DIP



Ordering Information

Product Number	Package	Operating Temperature
KA7552A	8-DIP	-25 ~ +85°C
KA7553A		



NOTES:

- A. CONFORMS TO JEDEC MS-001, VARIATION BA
- B. CONTROLLING DIMENSIONS ARE IN INCHES.
REFERENCE DIMENSIONS ARE IN MILLIMETERS.

C DOES NOT INCLUDE MOLD FLASH OR PROTRUSIONS.
MOLD FLASH OR PROTRUSIONS SHALL NOT EXCEED
0.010 INCHES OR 0.25MM.

D DOES NOT INCLUDE DAMBAR PROTRUSIONS.
DAMBAR PROTRUSIONS SHALL NOT EXCEED 0.010
INCHES OR 0.25MM.

E. DIMENSIONING AND TOLERANCING PER ASME
Y14.5M-2009

F. DRAWING FILENAME: MKT-N08Erev8



ON Semiconductor and  are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of ON Semiconductor's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using ON Semiconductor products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by ON Semiconductor. "Typical" parameters which may be provided in ON Semiconductor data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. ON Semiconductor does not convey any license under its patent rights nor the rights of others. ON Semiconductor products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use ON Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold ON Semiconductor and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that ON Semiconductor was negligent regarding the design or manufacture of the part. ON Semiconductor is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:

Literature Distribution Center for ON Semiconductor
19521 E. 32nd Pkwy, Aurora, Colorado 80011 USA
Phone: 303-675-2175 or 800-344-3860 Toll Free USA/Canada
Fax: 303-675-2176 or 800-344-3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800-282-9855 Toll Free
USA/Canada

Europe, Middle East and Africa Technical Support:
Phone: 421 33 790 2910

Japan Customer Focus Center
Phone: 81-3-5817-1050

ON Semiconductor Website: www.onsemi.com

Order Literature: <http://www.onsemi.com/orderlit>

For additional information, please contact your local
Sales Representative

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[ON Semiconductor:](#)

[KA7552A](#)

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru

moschip.ru_4

moschip.ru_6

moschip.ru_9