

20V P-CHANNEL ENHANCEMENT MODE MOSFET
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)}$	I_D $T_A = 25^\circ\text{C}$
-20V	600m Ω @ $V_{GS} = -4.5\text{V}$	-0.92A
	900m Ω @ $V_{GS} = -2.7\text{V}$	-0.75A

Description and Applications

This MOSFET utilizes a unique structure that combines the benefits of low on-resistance with fast switching speed, making it ideal for high-efficiency power management applications.

- DC - DC converters
- Power management functions
- Disconnect switches
- Motor control

Features and Benefits

- Fast switching speed
- Low on-resistance
- Low threshold
- Low gate drive
- "Lead Free", RoHS Compliant (Note 1)
- Halogen and Antimony Free. "Green" Device (Note 2)
- Qualified to AEC-Q101 Standards for High Reliability

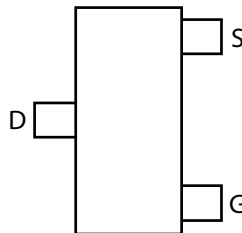
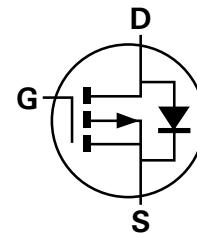
Mechanical Data

- Case: SOT23
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish; Solderable per MIL-STD-202, Method 208
- Weight: 0.008 grams (approximate)

SOT23



Top View

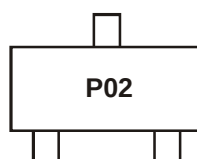

 Top View
 Pin Out


Equivalent Circuit

Ordering Information (Note 3)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
ZXM61P02FTA	P02	7	8	3000 Units

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. No purposely added lead. Halogen and Antimony free.
 2. Diodes Inc's "Green" Policy can be found on our website at <http://www.diodes.com>
 3. For packaging details, go to our website at <http://www.diodes.com>

Marking Information


P02 = Product Type Marking Code

Maximum Ratings @T_A = 25°C unless otherwise specified

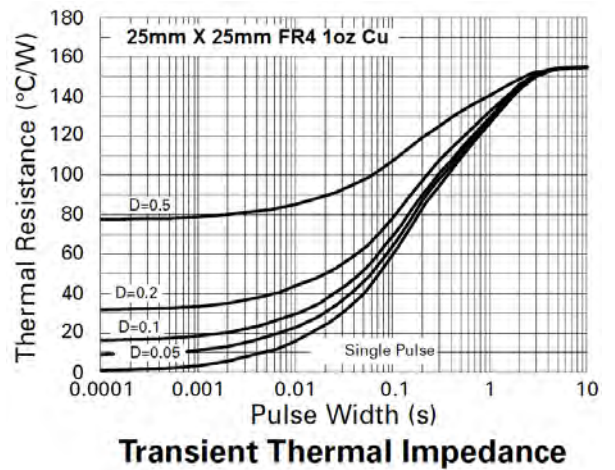
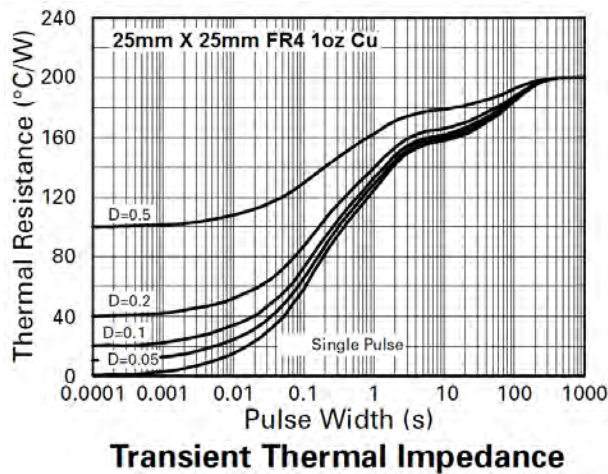
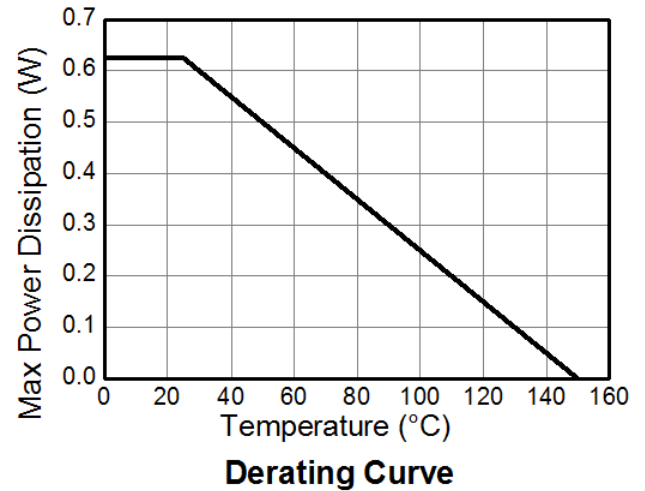
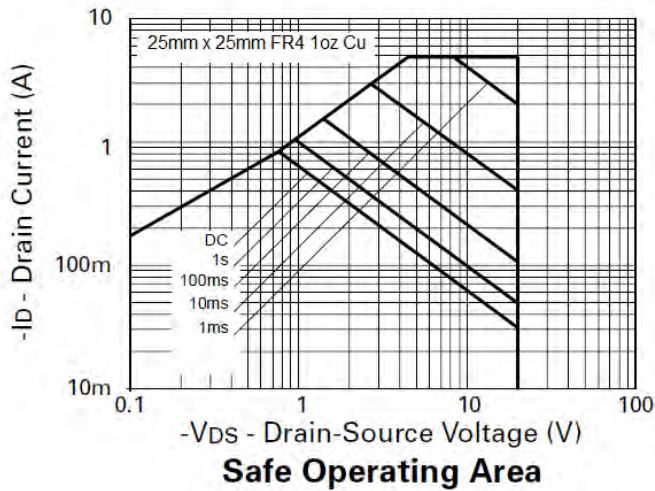
Characteristic			Symbol	Value	Units
Drain-Source Voltage			V _{DSS}	-20	V
Gate-Source Voltage			V _{GS}	±12	V
Continuous Drain Current	V _{GS} = 4.5V	T _A = 25°C (Note 5) T _A = 70°C (Note 5)	I _D	-0.9 -0.7	A
Pulsed Drain Current (Note 6)			I _{DM}	-4.9	A
Continuous Source Current (Body Diode) (Note 5)			I _S	-0.9	A
Pulsed Source Current (Body Diode) (Note 6)			I _{SM}	-4.9	A

Thermal Characteristics @T_A = 25°C unless otherwise specified

Characteristic		Symbol	Value	Unit
Power Dissipation (Note 4)	Linear Derating Factor	P _D	625 5	mW mW/°C
Power Dissipation (Note 5)	Linear Derating Factor	P _D	806 6.4	mW mW/°C
Thermal Resistance, Junction to Ambient (Note 4)		R _{θJA}	200	°C/W
Thermal Resistance, Junction to Ambient (Note 5)		R _{θJA}	155	°C/W
Operating and Storage Temperature Range		T _J , T _{STG}	-55 to +150	°C

- Notes:
4. For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions
 5. For a device surface mounted on FR4 PCB measured at t ≤ 5 secs.
 6. Repetitive rating 25mm x 25mm FR4 PCB, D=0.05 pulse width=10μs - pulse current limited by maximum junction temperature.

Thermal Characteristics

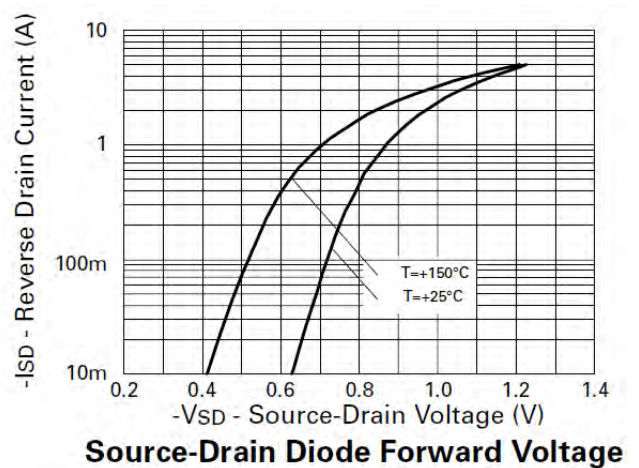
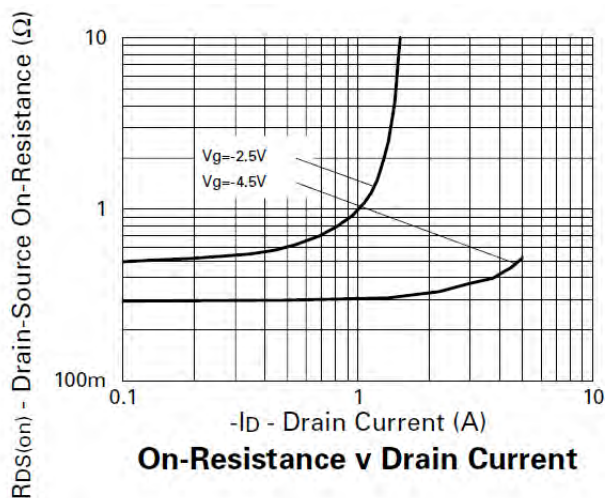
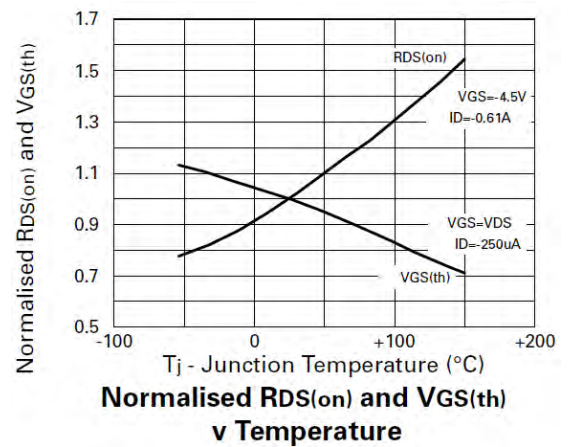
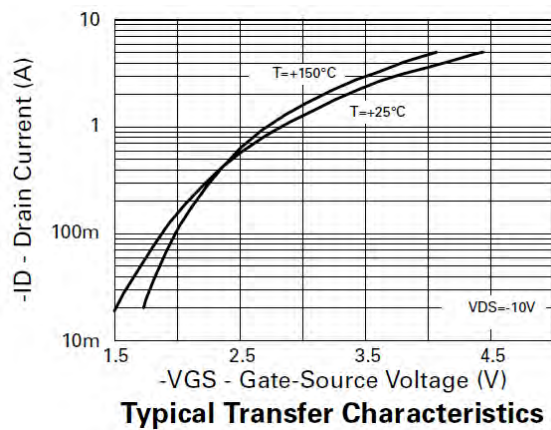
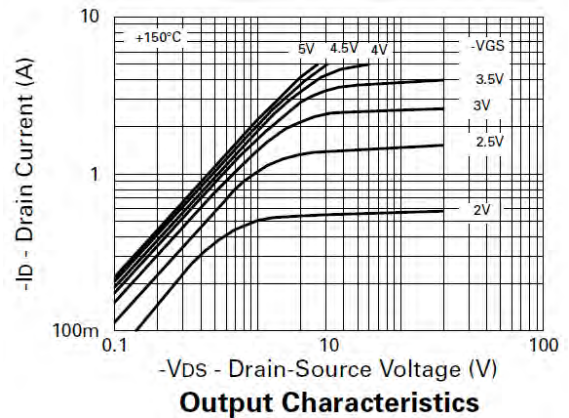
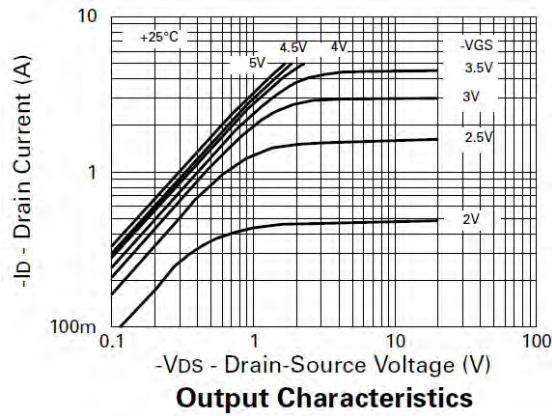


Electrical Characteristics @T_A = 25°C unless otherwise specified

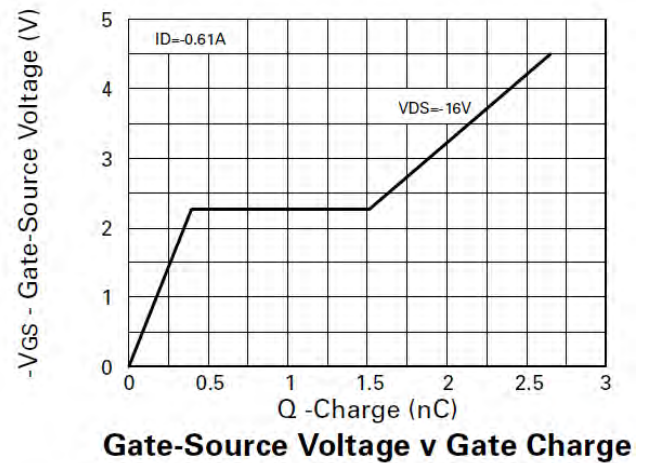
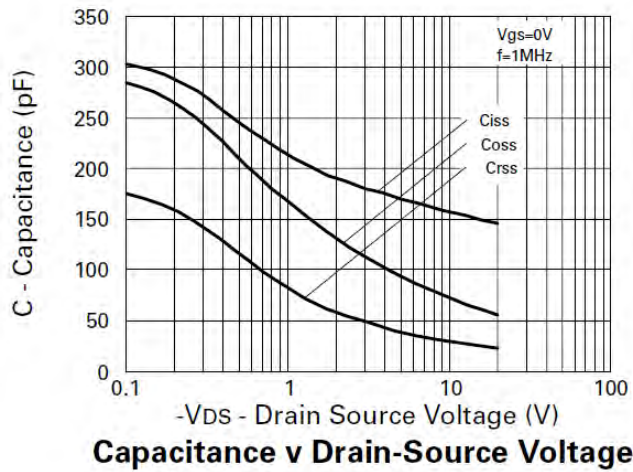
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	-20	—	—	V	I _D = -250μA, V _{GS} = 0V
Zero Gate Voltage Drain Current	I _{DSS}	—	—	-0.1	μA	V _{DS} = -20V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	—	—	±100	nA	V _{GS} = ±12V, V _{DS} = 0V
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(th)}	-0.7	—	—	V	I _D = -250μA, V _{DS} = V _{GS}
Static Drain-Source On-Resistance (Note 7)	R _{DS(on)}	—	—	0.6	Ω	V _{GS} = -4.5V, I _D = -0.61A
				0.9		V _{GS} = -2.7V, I _D = -0.31A
Forward Transconductance (Notes 7 and 9)	g _{fs}	0.56	—	—	S	V _{DS} = -10V, I _D = -0.31A
Diode Forward Voltage (Note 7)	V _{SD}	—	—	-0.95	V	T _J = 25°C, I _S = -0.61A, V _{GS} = 0V
Reverse Recovery Time (Note 9)	t _{rr}	—	14.9	—	ns	T _J = 25°C, I _F = -0.61A,
Reverse Recovery Charge (Note 9)	Q _{rr}	—	5.6	—	nC	di/dt = 100A/μs
DYNAMIC CHARACTERISTICS (Note 9)						
Input Capacitance	C _{iss}	—	150	—	pF	V _{DS} = -15V, V _{GS} = 0V f = 1.0MHz
Output Capacitance	C _{oss}	—	70	—		
Reverse Transfer Capacitance	C _{rss}	—	30	—		
Turn-On Delay Time (Note 8)	t _{d(on)}	—	2.9	—	ns	V _{DD} = -110V, I _D = -0.93A, R _G ≅ 6.2Ω, R _D ≅ 11Ω,
Turn-On Rise Time (Note 8)	t _r	—	6.7	—		
Turn-Off Delay Time (Note 8)	t _{d(off)}	—	11.2	—		
Turn-Off Fall Time (Note 8)	t _f	—	10.1	—	nC	V _{DS} = -16V, V _{GS} = -4.5V, I _D = -0.61A
Total Gate Charge (Note 8)	Q _g	—	3.5	—		
Gate-Source Charge (Note 8)	Q _{gs}	—	0.5	—		
Gate-Drain Charge (Note 8)	Q _{gd}	—	1.5	—		

- Notes:
7. Measured under pulsed conditions. Pulse width = 300μs. Duty cycle ≤ 2%.
 8. Switching characteristics are independent of operating junction temperature.
 9. For design aid only, not subject to production testing.

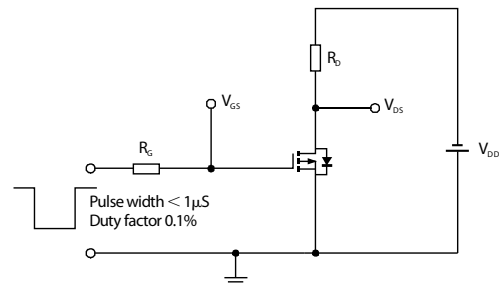
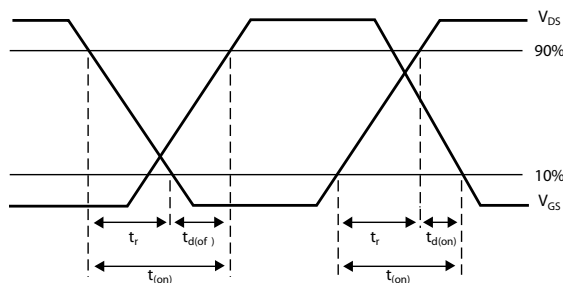
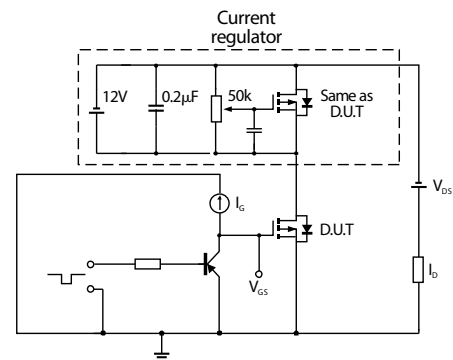
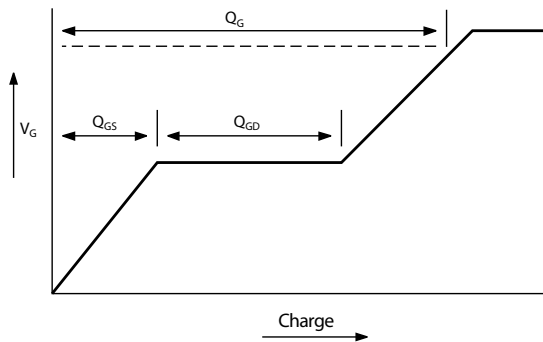
Typical Characteristics



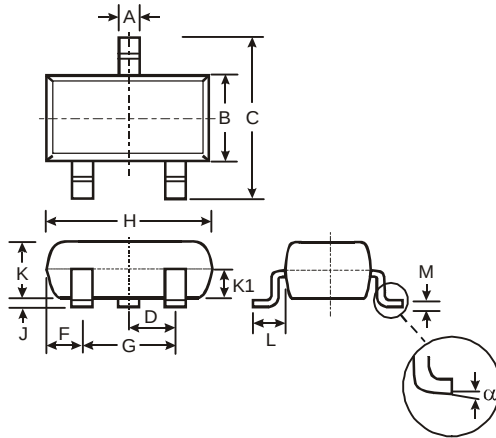
Typical Characteristics - continued



Test Circuits

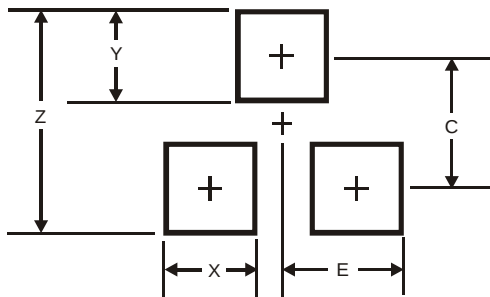


Package Outline Dimensions



SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

IMPORTANT NOTICE

DIODES INCORPORATED MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDING TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. Diodes Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does Diodes Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on Diodes Incorporated website, harmless against all damages.

Diodes Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel. Should Customers purchase or use Diodes Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold Diodes Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

Products described herein may be covered by one or more United States, international or foreign patents pending. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks.

LIFE SUPPORT

Diodes Incorporated products are specifically not authorized for use as critical components in life support devices or systems without the express written approval of the Chief Executive Officer of Diodes Incorporated. As used herein:

A. Life support devices or systems are devices or systems which:

1. are intended to implant into the body, or
2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

Customers represent that they have all necessary expertise in the safety and regulatory ramifications of their life support devices or systems, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of Diodes Incorporated products in such safety-critical, life support devices or systems, notwithstanding any devices- or systems-related information or support that may be provided by Diodes Incorporated. Further, Customers must fully indemnify Diodes Incorporated and its representatives against any damages arising out of the use of Diodes Incorporated products in such safety-critical, life support devices or systems.

Copyright © 2012, Diodes Incorporated

www.diodes.com



**Стандарт
Электрон
Связь**

Мы молодая и активно развивающаяся компания в области поставок электронных компонентов. Мы поставляем электронные компоненты отечественного и импортного производства напрямую от производителей и с крупнейших складов мира.

Благодаря сотрудничеству с мировыми поставщиками мы осуществляем комплексные и плановые поставки широчайшего спектра электронных компонентов.

Собственная эффективная логистика и склад в обеспечивает надежную поставку продукции в точно указанные сроки по всей России.

Мы осуществляем техническую поддержку нашим клиентам и предпродажную проверку качества продукции. На все поставляемые продукты мы предоставляем гарантию .

Осуществляем поставки продукции под контролем ВП МО РФ на предприятия военно-промышленного комплекса России , а также работаем в рамках 275 ФЗ с открытием отдельных счетов в уполномоченном банке. Система менеджмента качества компании соответствует требованиям ГОСТ ISO 9001.

Минимальные сроки поставки, гибкие цены, неограниченный ассортимент и индивидуальный подход к клиентам являются основой для выстраивания долгосрочного и эффективного сотрудничества с предприятиями радиоэлектронной промышленности, предприятиями ВПК и научно-исследовательскими институтами России.

С нами вы становитесь еще успешнее!

Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург,
Промышленная ул, дом № 19, литера Н,
помещение 100-Н Офис 331