30V Nch+Pch Power MOSFET

Symbol	Tr1:Nch	Tr2:Pch
V_{DSS}	30V	-30V
R _{DS(on)} (Max.)	21.4mΩ	29.6mΩ
I_D	±9.0A	±8.5A
P_D	3.0)W

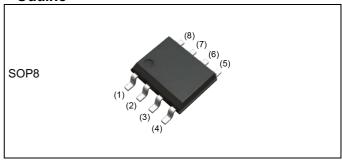
Features

- 1) Low on resistance
- 2) Small Surface Mount Package (SOP8)
- 3) Pb-free lead plating; RoHS compliant
- 4) Halogen Free

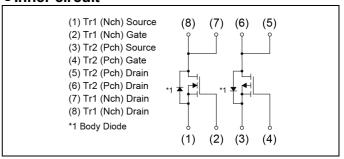
Application

Switching

Outline



•Inner circuit



Packaging specifications

	Packing	Embossed Tape
	Reel size (mm)	330
Туре	Tape width (mm)	12
	Quantity (pcs)	2500
	Taping code	TB1
	Marking	SH8MA4

● **Absolute maximum ratings** (T_a = 25°C ,unless otherwise specified)

Parameter	Symbol	Va	lue	Unit
raianietei	Symbol	Tr1:Nch	Tr2:Pch	Offic
Drain - Source voltage	V_{DSS}	30	-30	V
Continuous drain current	I _D *1	±9.0	±8.5	А
Pulsed drain current	I _{DP} *2	±18	±18	А
Gate - Source voltage	V_{GSS}	±20	±20	V
Avalanche current, single pulse	I _{AS} *3	9.0	-8.5	А
Avalanche energy, single pulse	E _{AS} *3	5.7	10.5	mJ
	P _D *1	3	.0	
Power dissipation (total)	P _D *4	2	.0	W
	P _D *5	1	.4	
Junction temperature	T _j	1:	50	°C
Operating junction and storage temperature range	T _{stg}	-55 to	+150	°C

●Thermal resistance

Doromotor	Cymahal		Lloit		
Parameter	Symbol	Min.	Тур.	Max.	Unit
Thermal registeres innetion, embient (total)	R _{thJA} *4	-	-	62.5	°C/W
Thermal resistance, junction - ambient (total)	R _{thJA} *5	-	-	89.2	C/VV

● Electrical characteristics (T_a = 25°C)

Demonstra	0	т	0		Values		Limit
Parameter	Symbol	Type	Conditions	Min.	Тур.	Max.	Unit
Drain - Source breakdown	V	Tr1	$V_{GS} = 0V$, $I_D = 1mA$	30	-	-	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
voltage	V _{(BR)DSS}	Tr2	$V_{GS} = 0V, I_D = 1mA$	-30	-	-	V
Breakdown voltage	ΔV _{(BR)DSS}	Tr1	I _D = 1mA, referenced to 25°C	-	21	-	\ //ºO
temperature coefficient	ΔT_{j}	Tr2	I _D = -1mA, referenced to 25°C	-	-22	-	mV/°C
Zero gate voltage	_	Tr1	V _{DS} = 30V, V _{GS} = 0V	-	-	1	
drain current	I _{DSS}	Tr2	V _{DS} = -30V, V _{GS} = 0V	-	-	-1	μA
Gate - Source		Tr1	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	±100	A
leakage current	I _{GSS}	Tr2	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	±100	nA
Gate threshold	V _{GS(th)}	Tr1	$V_{DS} = V_{GS}$, $I_D = 1mA$	1.0	-	2.5	.,
voltage		Tr2	$V_{DS} = V_{GS}$, $I_D = 1mA$	-1.0	-	-2.5	V
Gate threshold voltage	$\Delta V_{GS(th)}$	Tr1	I _D = 1mA, referenced to 25°C	-	-3	-	mV/°C
temperature coefficient	ΔT _j	Tr2	I _D = -1mA, referenced to 25°C	1	2.9	-	IIIV/ C
		Tr1	V _{GS} = 10V, I _D = 9.0A	-	16.5	21.4	
Static drain - source	D *6	111	$V_{GS} = 4.5V, I_D = 9.0A$	-	22.2	32.5	O
on - state resistance	R _{DS(on)} *6	T-0	$V_{GS} = -10V, I_D = -8.5A$	-	23.0	29.6	mΩ
		Tr2	V _{GS} = -4.5V, I _D = -8.5A	-	32.0	41.3	
Cata registance	В	Tr1	f-1ML - on on drain	-	3.4	-	
Gate resistance	R_{G}	Tr2	f=1MHz, open drain	1	6.1	-	Ω
Forward Transfer	IV 1*6	Tr1	V _{DS} = 5V, I _D = 9.0A	4.4	-	-	
Admittance	Y _{fs} *6	Tr2	$V_{DS} = -5V, I_D = -8.5A$	5.5	-	-	S

^{*1} Pw \leq 1s, Limited only by maximum temperature allowed.

Tr2: L \simeq 0.2mH, V_{DD} = -15V, R_G = 25 Ω , Starting T_i = 25 $^{\circ}$ C Fig.6-1,6-2

^{*2} Pw \leq 10 μ s, Duty cycle \leq 1%

^{*3} Tr1: L \simeq 0.1mH, V_{DD} = 15V, R_G = 25 Ω , Starting T_j = 25 $^{\circ}$ C Fig.3-1,3-2

^{*4} Mounted on a ceramic board (30×30×0.8mm)

^{*5} Mounted on a Cu board (40×40×0.8mm)

^{*6} Pulsed

● Electrical characteristics (T_a = 25°C)

<Tr1>

Daramatar	Cumbal	Conditions	,	Unit		
Parameter	Symbol	Conditions	Min.	Тур.	Max.	Unit
Input capacitance	C _{iss}	V _{GS} = 0V	-	640	-	
Output capacitance	C _{oss}	V _{DS} = 15V	-	110	-	pF
Reverse transfer capacitance	C _{rss}	f = 1MHz	-	90	-	
Turn - on delay time	t _{d(on)} *6	$V_{DD} \simeq 15V$, $V_{GS} = 10V$	-	8	-	
Rise time	t _r *6	I _D = 4.5A	-	19	-	no
Turn - off delay time	t _{d(off)} *6	$R_L = 3.3\Omega$	-	33	-	ns
Fall time	t _f *6	$R_G = 10\Omega$	-	7	-	

<Tr2>

Doromotor	Symbol Conditions -		,	Unit		
Parameter	Symbol	Conditions	Min.	Тур.	Max.	Offic
Input capacitance	C _{iss}	V _{GS} = 0V	-	890	-	
Output capacitance	C _{oss}	V _{DS} = -15V	-	160	-	pF
Reverse transfer capacitance	C _{rss}	f = 1MHz	-	125	-	
Turn - on delay time	t _{d(on)} *6	$V_{DD} \simeq$ -15V, $V_{GS} =$ -10V	-	10	-	
Rise time	t _r *6	I _D = -4.25A	-	16	-	
Turn - off delay time	t _{d(off)} *6	$R_L = 3.5\Omega$	-	55	-	ns
Fall time	t _f *6	$R_G = 10\Omega$	-	22	-	

● Gate charge characteristics (T_a = 25°C)

<Tr1>

Darameter	Symbol Conditions		tions	Values			Unit
Parameter	Symbol	Condi	Conditions		Тур.	Max.	Offic
Total gate charge	O *5		V _{GS} = 10V	-	15.5	1	
Total gate charge	Q_g^{*5}	V _{DD} ≃ 15V		-	7.9	-	nC
Gate - Source charge	Q _{gs} *5	I _D = 9A	V _{GS} = 4.5V	-	3.1	-	TIC
Gate - Drain charge	Q _{gd} *5			-	2.8	-	

<Tr2>

Parameter	Cumbal	Conditions		Values			Lloit
	Symbol			Min.	Тур.	Max.	Unit
Total gate above	O *6		V _{GS} = -10V	-	19.6	-	
Total gate charge	Q_g^{*6}	V _{DD} ≃ -15V		-	9.8	-	" C
Gate - Source charge	Q _{gs} *6	$I_D = -8.5A$	V _{GS} = -4.5V	-	3.0	-	nC
Gate - Drain charge	Q _{gd} *6			-	3.7	1	

● Body diode electrical characteristics (Source-Drain) (T_a = 25°C)

<Tr1>

Darameter	Symbol Conditions -		,	Unit		
Parameter			Min.	Тур.	Max.	Offic
Continuous forward current	Is	T - 25°C	-	-	1.67	_
Pulse forward current	I _{SP} *2	$T_a = 25^{\circ}C$		-	18	А
Forward voltage	V _{SD} *6	V _{GS} = 0V, I _S = 1.67A	-	-	1.2	V

<Tr2>

Parameter	Symbol	Conditions	,	Unit		
raiametei	Symbol	Conditions	Min.	Тур.	Max.	Offic
Continuous forward current	I _S	T = 25°C	-	-	-1.67	^
Pulse forward current	I_{SP}^{*2} $T_a = 25^{\circ}C$		-	-	-18	А
Forward voltage	V _{SD} *6	$V_{GS} = 0V, I_S = -1.67A$	-	-	-1.2	V

Fig.1 Power Dissipation Derating Curve

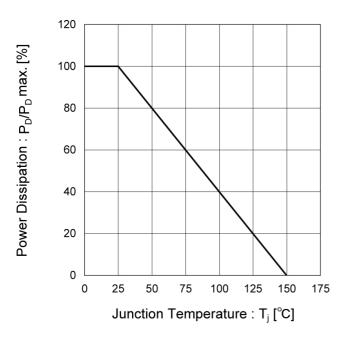
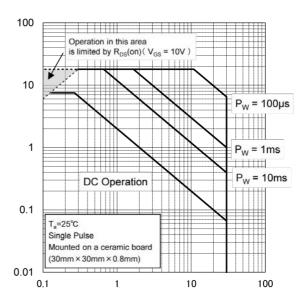


Fig.2 Maximum Safe Operating Area



Drain Current : I_D [A]

Drain - Source Voltage : V_{DS} [V]

Fig.3 Normalized Transient Thermal Resistance vs. Pulse Width

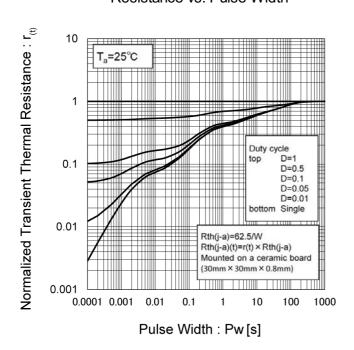
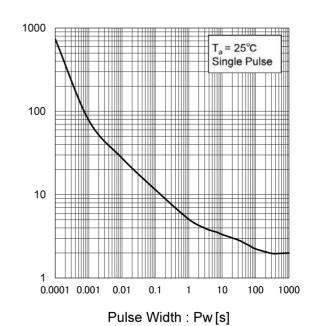


Fig.4 Single Pulse Maximum Power dissipation

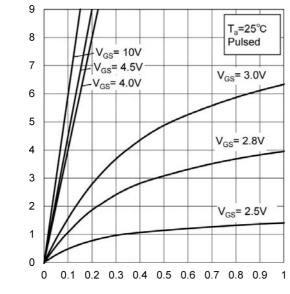


Peak Transient Power : P(W)

Drain Current : I_D [A]

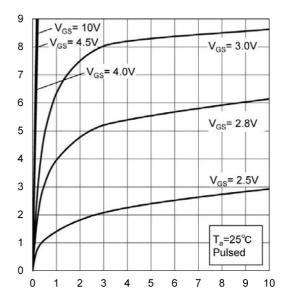
● Electrical characteristic curves < Tr1>

Fig.5 Typical Output Characteristics(I)



Drain - Source Voltage : V_{DS} [V]

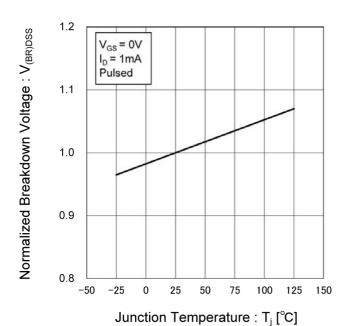
Fig.6 Typical Output Characteristics(II)



 $Drain - Source\ Voltage: V_{DS}[V]$

Fig.7 Breakdown Voltage vs.

Junction Temperature



Drain Current : I_D [A]

Fig.8 Typical Transfer Characteristics

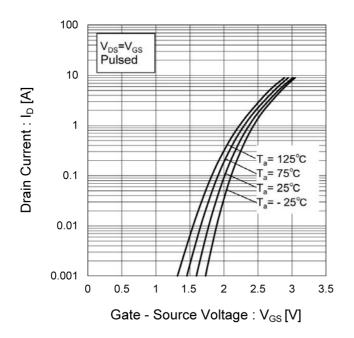
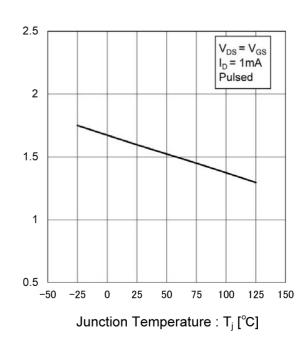


Fig.9 Gate Threshold Voltage vs.
Junction Temperature



Gate Threshold Voltage : $V_{GS(th)}\left[V\right]$

Fig.10 Forward Transfer Admittance vs.
Drain Current

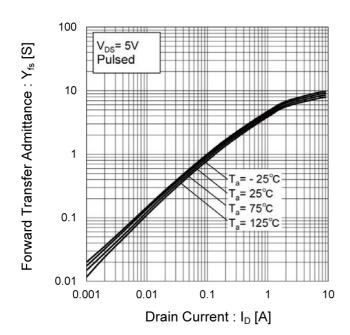


Fig.11 Drain Current Derating Curve

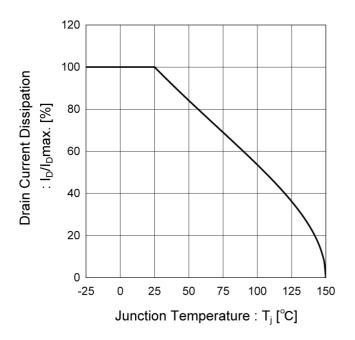


Fig.12 Static Drain - Source On - State Resistance vs. Gate Source Voltage

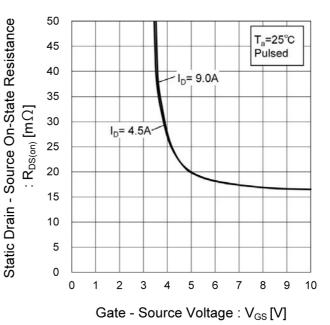


Fig.13 Static Drain - Source On - State Resistance vs. Junction Temperature

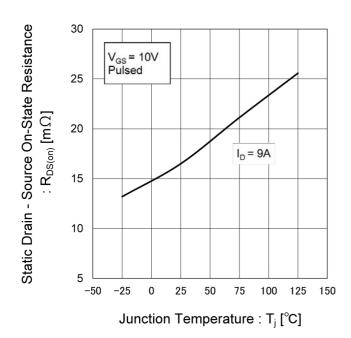


Fig.14 Static Drain - Source On - State Resistance vs. Drain Current (I)

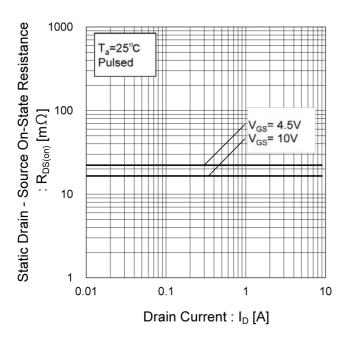


Fig.15 Static Drain - Source On - State Resistance vs. Drain Current (II)

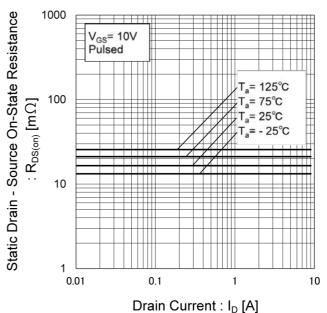


Fig.16 Static Drain - Source On - State Resistance vs. Drain Current (III)

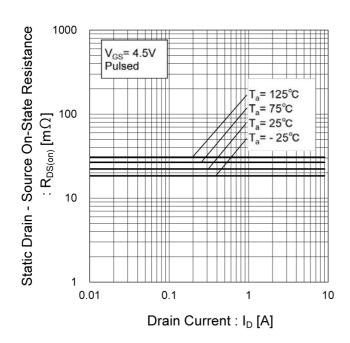


Fig.17 Typical Capacitance vs.

Drain - Source Voltage

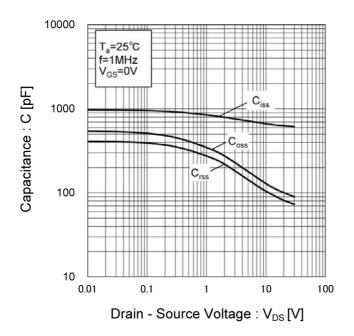


Fig.18 Switching Characteristics

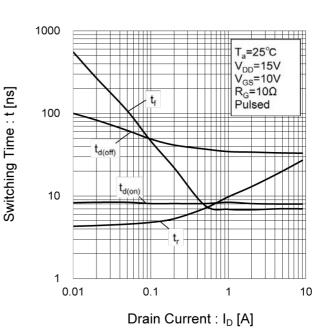


Fig.19 Dynamic Input Characteristics

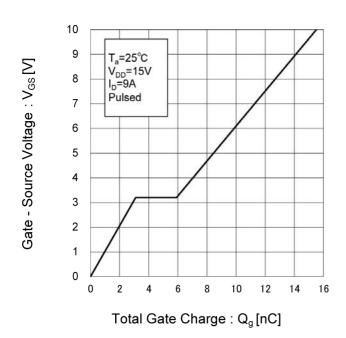
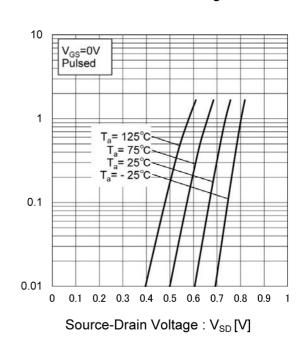


Fig.20 Source Current vs.

Source Drain Voltage



Source Current : Is [A]

Fig.1 Power Dissipation Derating Curve

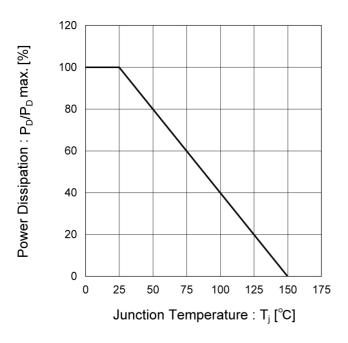
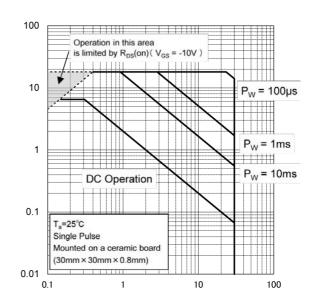


Fig.2 Maximum Safe Operating Area



Drain Current: -l_D [A]

Drain - Source Voltage: -VDS [V]

Fig.3 Normalized Transient Thermal Resistance vs. Pulse Width

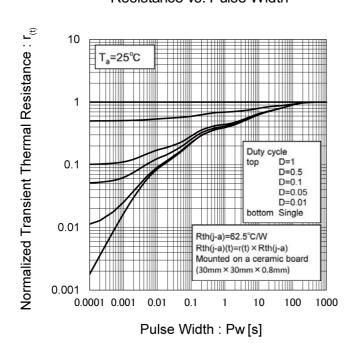


Fig.4 Single Pulse Maximum Power dissipation

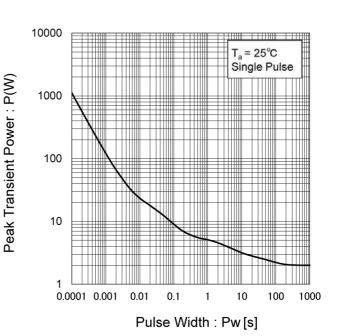


Fig.5 Typical Output Characteristics(I)

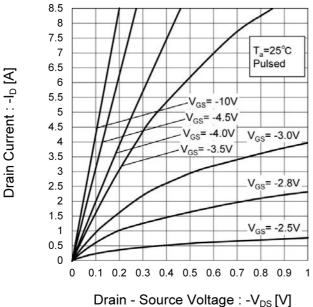
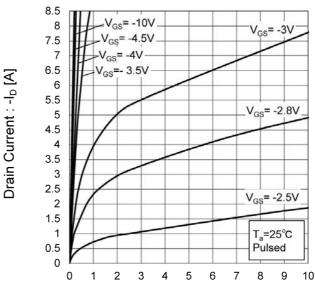


Fig.6 Typical Output Characteristics(II)



Drain - Source Voltage : -V_{DS} [V]

Fig.7 Breakdown Voltage vs. **Junction Temperature**

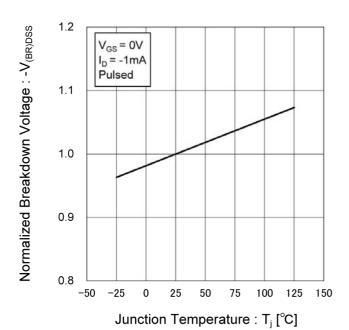


Fig.8 Typical Transfer Characteristics

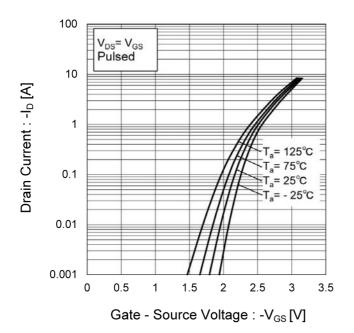


Fig.9 Gate Threshold Voltage vs.
Junction Temperature

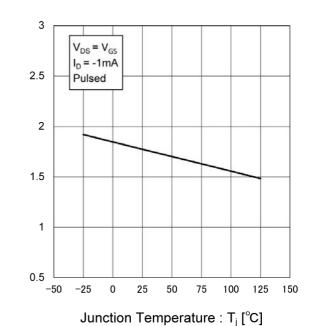
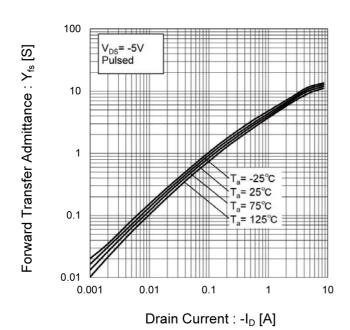


Fig.10 Forward Transfer Admittance vs.
Drain Current



13/19

Gate Threshold Voltage: -V_{GS(th)} [V]

Fig.11 Drain Current Derating Curve

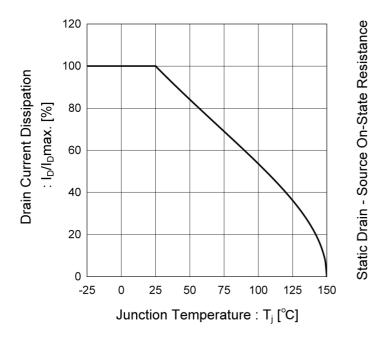


Fig.12 Static Drain - Source On - State Resistance vs. Gate Source Voltage

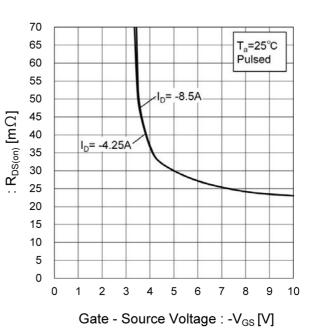
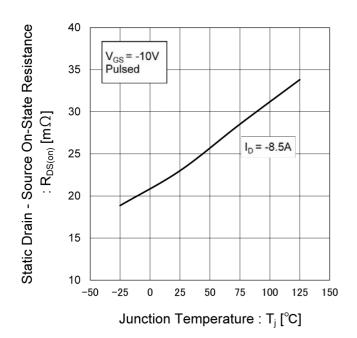


Fig.13 Static Drain - Source On - State Resistance vs. Junction Temperature



14/19

Fig.14 Static Drain - Source On - State
Resistance vs. Drain Current (I)

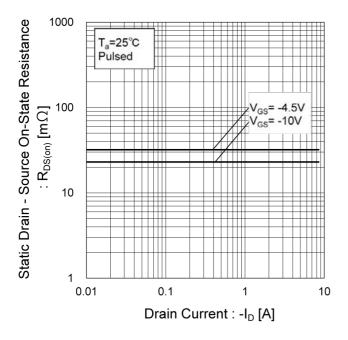


Fig.15 Static Drain - Source On - State Resistance vs. Drain Current (II)

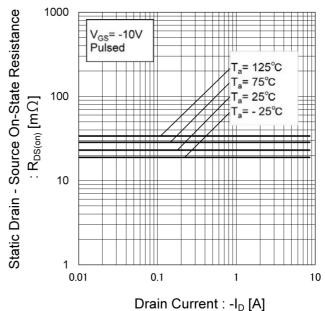
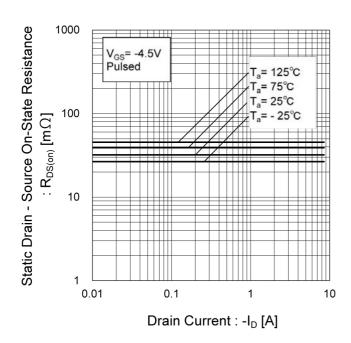


Fig.16 Static Drain - Source On - State Resistance vs. Drain Current (III)



15/19

Fig.17 Typical Capacitance vs.

Drain - Source Voltage

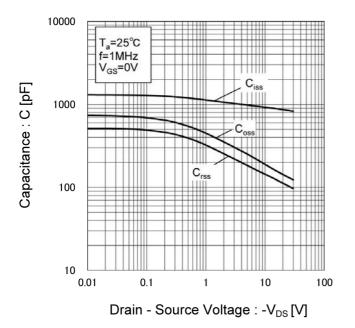


Fig.18 Switching Characteristics

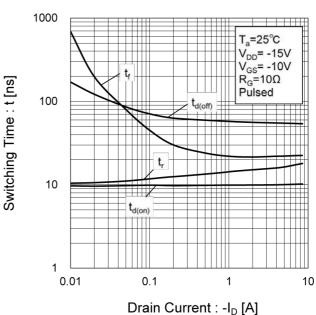


Fig.19 Dynamic Input Characteristics

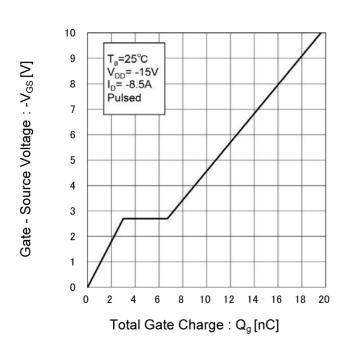
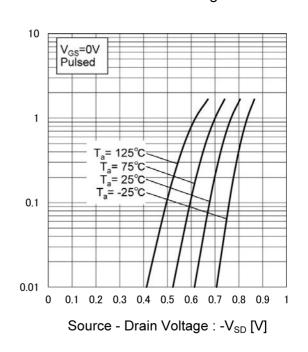


Fig.20 Source Current vs.
Source Drain Voltage



Source Current : -I_s [A]

● Measurement circuits < Tr1>

Fig.1-1 Switching Time Measurement Circuit

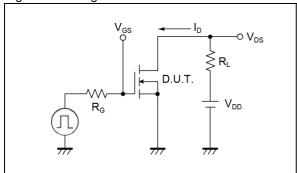


Fig.2-1 Gate Charge Measurement Circuit

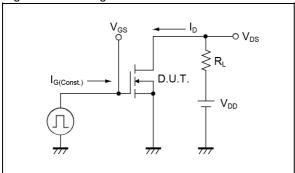


Fig.3-1 Avalanche Measurement Circuit

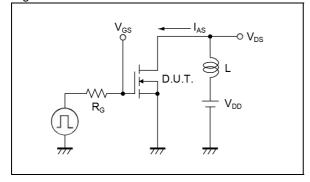


Fig.1-2 Switching Waveforms

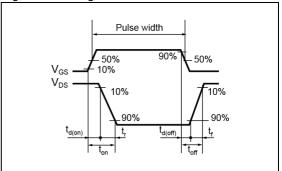


Fig.2-2 Gate Charge Waveform

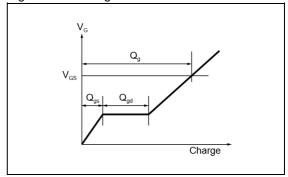
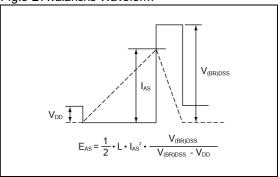


Fig.3-2 Avalanche Waveform



● Measurement circuits < Tr2>

Fig.4-1 Switching Time Measurement Circuit

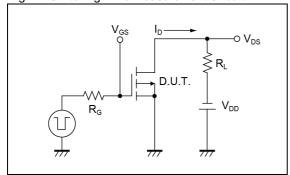


Fig.5-1 Gate Charge Measurement Circuit

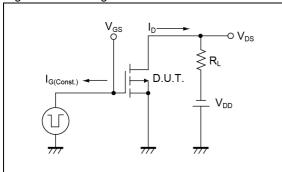


Fig.6-1 Avalanche Measurement Circuit

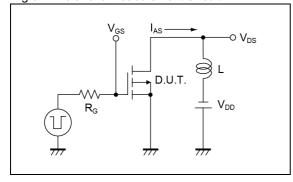


Fig.4-2 Switching Waveforms

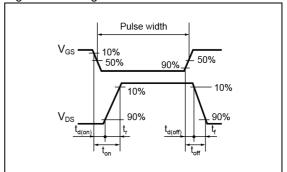


Fig.5-2 Gate Charge Waveform

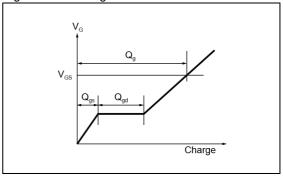
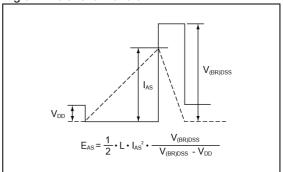


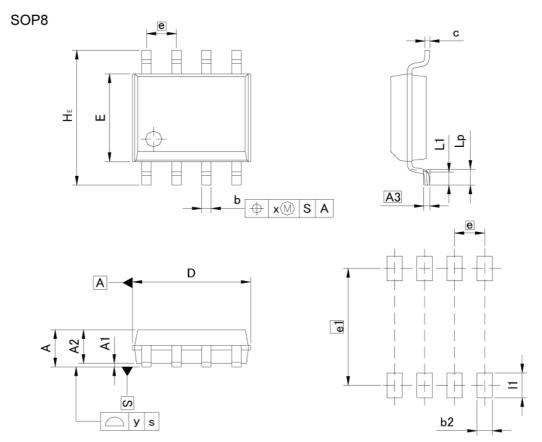
Fig.6-2 Avalanche Waveform



Notice

This product might cause chip aging and breakdown under the large electrified environment. Please consider to design ESD protection circuit.

Dimensions



Pattern of terminal position areas [Not a pattern of soldering pads]

DIM	MILIM	ETERS	INC	HES
DIM	MIN	MAX	MIN	MAX
Α	<u>₽</u> 3	1.75	= 1	0.069
A1	0.	15	0.0	06
A2	1.40	1.60	0.055	0.063
A3	0.	25	0.0	10
b	0.30	0.50	0.012	0.020
С	0.10	0.30	0.004	0.012
D	4.80	5.20	0.189	0.205
E	3.75	4.05	0.148	0.159
е	1.	27	0.0	50
HE	5.70	6.30	0.224	0.248
L1	0.40	0.60	0.016	0.024
Lp	0.65	0.85	0.026	0.033
х	0.	15	0.0	06
у	0.	10	0.0	04
DIM	MILIM	ETERS	INC	HES
DIM	MIN	MAX	MIN	MAX

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	=2	0.65	#7.0	0.026
e1	5.15		0.203	
11	 2	1.15	2 8	0.045

Dimension in mm/inches



Notice

Precaution on using ROHM Products

1. Our Products are designed and manufactured for application in ordinary electronic equipment (such as AV equipment, OA equipment, telecommunication equipment, home electronic appliances, amusement equipment, etc.). If you intend to use our Products in devices requiring extremely high reliability (such as medical equipment (Note 1), transport equipment, traffic equipment, aircraft/spacecraft, nuclear power controllers, fuel controllers, car equipment including car accessories, safety devices, etc.) and whose malfunction or failure may cause loss of human life, bodily injury or serious damage to property ("Specific Applications"), please consult with the ROHM sales representative in advance. Unless otherwise agreed in writing by ROHM in advance, ROHM shall not be in any way responsible or liable for any damages, expenses or losses incurred by you or third parties arising from the use of any ROHM's Products for Specific Applications.

(Note1) Medical Equipment Classification of the Specific Applications

JAPAN	USA	EU	CHINA
CLASSⅢ	CL ACCIII	CLASS II b	CLASSIII
CLASSIV	CLASSII	CLASSⅢ	

- 2. ROHM designs and manufactures its Products subject to strict quality control system. However, semiconductor products can fail or malfunction at a certain rate. Please be sure to implement, at your own responsibilities, adequate safety measures including but not limited to fail-safe design against the physical injury, damage to any property, which a failure or malfunction of our Products may cause. The following are examples of safety measures:
 - [a] Installation of protection circuits or other protective devices to improve system safety
 - [b] Installation of redundant circuits to reduce the impact of single or multiple circuit failure
- 3. Our Products are designed and manufactured for use under standard conditions and not under any special or extraordinary environments or conditions, as exemplified below. Accordingly, ROHM shall not be in any way responsible or liable for any damages, expenses or losses arising from the use of any ROHM's Products under any special or extraordinary environments or conditions. If you intend to use our Products under any special or extraordinary environments or conditions (as exemplified below), your independent verification and confirmation of product performance, reliability, etc, prior to use, must be necessary:
 - [a] Use of our Products in any types of liquid, including water, oils, chemicals, and organic solvents
 - [b] Use of our Products outdoors or in places where the Products are exposed to direct sunlight or dust
 - [c] Use of our Products in places where the Products are exposed to sea wind or corrosive gases, including Cl₂, H₂S, NH₃, SO₂, and NO₂
 - [d] Use of our Products in places where the Products are exposed to static electricity or electromagnetic waves
 - [e] Use of our Products in proximity to heat-producing components, plastic cords, or other flammable items
 - [f] Sealing or coating our Products with resin or other coating materials
 - [g] Use of our Products without cleaning residue of flux (Exclude cases where no-clean type fluxes is used. However, recommend sufficiently about the residue.); or Washing our Products by using water or water-soluble cleaning agents for cleaning residue after soldering
 - [h] Use of the Products in places subject to dew condensation
- 4. The Products are not subject to radiation-proof design.
- 5. Please verify and confirm characteristics of the final or mounted products in using the Products.
- 6. In particular, if a transient load (a large amount of load applied in a short period of time, such as pulse, is applied, confirmation of performance characteristics after on-board mounting is strongly recommended. Avoid applying power exceeding normal rated power; exceeding the power rating under steady-state loading condition may negatively affect product performance and reliability.
- 7. De-rate Power Dissipation depending on ambient temperature. When used in sealed area, confirm that it is the use in the range that does not exceed the maximum junction temperature.
- 8. Confirm that operation temperature is within the specified range described in the product specification.
- 9. ROHM shall not be in any way responsible or liable for failure induced under deviant condition from what is defined in this document.

Precaution for Mounting / Circuit board design

- 1. When a highly active halogenous (chlorine, bromine, etc.) flux is used, the residue of flux may negatively affect product performance and reliability.
- 2. In principle, the reflow soldering method must be used on a surface-mount products, the flow soldering method must be used on a through hole mount products. If the flow soldering method is preferred on a surface-mount products, please consult with the ROHM representative in advance.

For details, please refer to ROHM Mounting specification

Precautions Regarding Application Examples and External Circuits

- 1. If change is made to the constant of an external circuit, please allow a sufficient margin considering variations of the characteristics of the Products and external components, including transient characteristics, as well as static characteristics.
- 2. You agree that application notes, reference designs, and associated data and information contained in this document are presented only as guidance for Products use. Therefore, in case you use such information, you are solely responsible for it and you must exercise your own independent verification and judgment in the use of such information contained in this document. ROHM shall not be in any way responsible or liable for any damages, expenses or losses incurred by you or third parties arising from the use of such information.

Precaution for Electrostatic

This Product is electrostatic sensitive product, which may be damaged due to electrostatic discharge. Please take proper caution in your manufacturing process and storage so that voltage exceeding the Products maximum rating will not be applied to Products. Please take special care under dry condition (e.g. Grounding of human body / equipment / solder iron, isolation from charged objects, setting of lonizer, friction prevention and temperature / humidity control).

Precaution for Storage / Transportation

- 1. Product performance and soldered connections may deteriorate if the Products are stored in the places where:
 - [a] the Products are exposed to sea winds or corrosive gases, including Cl₂, H₂S, NH₃, SO₂, and NO₂
 - [b] the temperature or humidity exceeds those recommended by ROHM
 - [c] the Products are exposed to direct sunshine or condensation
 - [d] the Products are exposed to high Electrostatic
- Even under ROHM recommended storage condition, solderability of products out of recommended storage time period
 may be degraded. It is strongly recommended to confirm solderability before using Products of which storage time is
 exceeding the recommended storage time period.
- 3. Store / transport cartons in the correct direction, which is indicated on a carton with a symbol. Otherwise bent leads may occur due to excessive stress applied when dropping of a carton.
- 4. Use Products within the specified time after opening a humidity barrier bag. Baking is required before using Products of which storage time is exceeding the recommended storage time period.

Precaution for Product Label

A two-dimensional barcode printed on ROHM Products label is for ROHM's internal use only.

Precaution for Disposition

When disposing Products please dispose them properly using an authorized industry waste company.

Precaution for Foreign Exchange and Foreign Trade act

Since concerned goods might be fallen under listed items of export control prescribed by Foreign exchange and Foreign trade act, please consult with ROHM in case of export.

Precaution Regarding Intellectual Property Rights

- 1. All information and data including but not limited to application example contained in this document is for reference only. ROHM does not warrant that foregoing information or data will not infringe any intellectual property rights or any other rights of any third party regarding such information or data.
- 2. ROHM shall not have any obligations where the claims, actions or demands arising from the combination of the Products with other articles such as components, circuits, systems or external equipment (including software).
- 3. No license, expressly or implied, is granted hereby under any intellectual property rights or other rights of ROHM or any third parties with respect to the Products or the information contained in this document. Provided, however, that ROHM will not assert its intellectual property rights or other rights against you or your customers to the extent necessary to manufacture or sell products containing the Products, subject to the terms and conditions herein.

Other Precaution

- 1. This document may not be reprinted or reproduced, in whole or in part, without prior written consent of ROHM.
- 2. The Products may not be disassembled, converted, modified, reproduced or otherwise changed without prior written consent of ROHM.
- In no event shall you use in any way whatsoever the Products and the related technical information contained in the Products or this document for any military purposes, including but not limited to, the development of mass-destruction weapons.
- 4. The proper names of companies or products described in this document are trademarks or registered trademarks of ROHM, its affiliated companies or third parties.

Notice-PGA-E Rev.004

General Precaution

- 1. Before you use our Products, you are requested to carefully read this document and fully understand its contents. ROHM shall not be in any way responsible or liable for failure, malfunction or accident arising from the use of any ROHM's Products against warning, caution or note contained in this document.
- 2. All information contained in this document is current as of the issuing date and subject to change without any prior notice. Before purchasing or using ROHM's Products, please confirm the latest information with a ROHM sales representative.
- 3. The information contained in this document is provided on an "as is" basis and ROHM does not warrant that all information contained in this document is accurate and/or error-free. ROHM shall not be in any way responsible or liable for any damages, expenses or losses incurred by you or third parties resulting from inaccuracy or errors of or concerning such information.

Notice – WE Rev.001

ПОСТАВКА ЭЛЕКТРОННЫХ КОМПОНЕНТОВ

многоканальный

Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001 Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

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_6 moschip.ru_4 moschip.ru_9