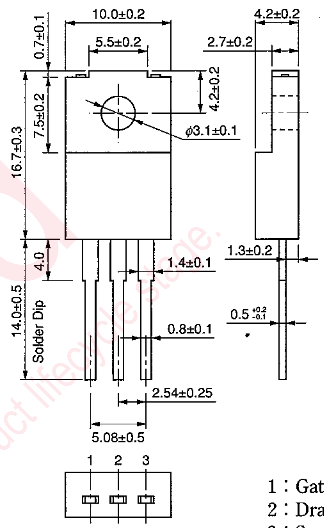
2SK2377

Silicon N-Channel Power F-MOS

Features
- Avalanche energy capability guaranteed
- High-speed switching
- Low ON-resistance
- No secondary breakdown
- Low-voltage drive

Applications
- Non-contact relay
- Solenoid drive
- Motor drive
- Control equipment
- Switching mode regulator

Unit : mm



1 : Gate
2 : Drain
3 : Source

TO-220 Full Pack Package (a)

Absolute Maximum Ratings (T_C=25℃)

Parameter		Symbol	Rating	Unit
Drain-Source breakdown voltage		V_{DSS}	170	V
Gate-Source voltage		V_{GSS}	±20	V
Drain current	DC	I_D	±20	A
	Pulse	I_{DP}	±40	A
Avalanche energy capability		EAS*	200	mJ
Allowable power dissipation	T_C=25℃	P_D	50	W
	Ta=25℃		2	
Channel temperature		T_{ch}	150	℃
Storage temperature		T_{stg}	−55 to +150	℃

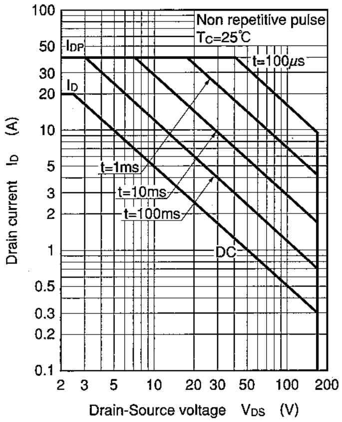
*L=1mH, I_L=20A, 1 pulse

Electrical Characteristics (T_C=25℃)

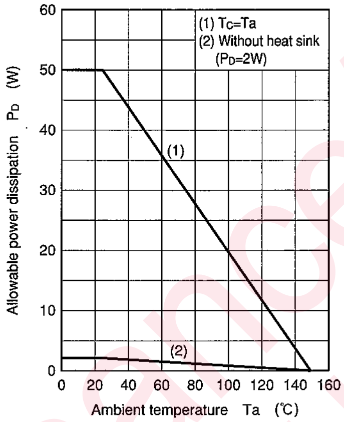
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain-Source cut-off current	I_{DSS}	V_{DS}=140V, V_{GS}=0			10	μA
Gate-Source leakage current	I_{GSS}	V_{GS}=±20V, V_{DS}=0			±1	μA
Drain-Source breakdown voltage	V_{DSS}	I_D=1mA, V_{GS}=0	170			V
Gate threshold voltage	V_{th}	V_{DS}=10V, I_D=1mA	1		2.5	V
Drain-Source ON-resistance	$R_{DS(on)}1$	V_{GS}=10V, I_D=10A		95	145	mΩ
	$R_{DS(on)}2$	V_{GS}=4V, I_D=10A		105	160	mΩ
Forward transadmittance	$\|Y_{fs}\|$	V_{DS}=10V, I_D=10A	10	17		S
Diode forward voltage	V_{DSF}	I_{DR}=20A, V_{GS}=0			−1.6	V
Input capacitance	C_{iss}	V_{DS}=10V, V_{GS}=0, f=1MHz		1650		pF
Output capacitance	C_{oss}			400		pF
Feedback capacitance	C_{rss}			130		pF
Turn-on time (delay time)	$t_{d(on)}$	V_{DD}=100V, I_D=10A, V_{GS}=10V, R_L=10Ω		10		ns
Rise time	t_r			60		ns
Fall time	t_f			280		ns
Turn-off time (delay time)	$t_{d(off)}$			1500		ns
Channel-Case heat resistance	$R_{th(ch-c)}$				2.5	℃/W
Channel-Atmosphere heat resistance	$R_{th(ch-a)}$				62.5	℃/W

Maintenance/Discontinued
Maintenance/Discontinued includes following four Product lifecycle stage. planed maintenance type, maintenance type, planed discontinued typed, discontinued type
Please visit following URL about latest information. http://www.semicon.panasonic.co.jp/en/

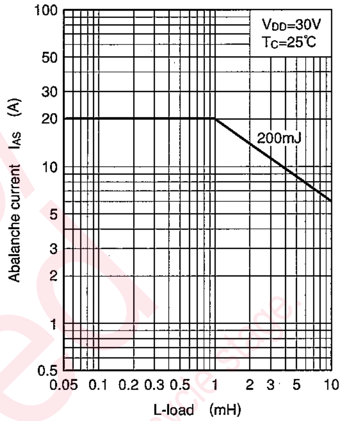
Area of safe operation (ASO)



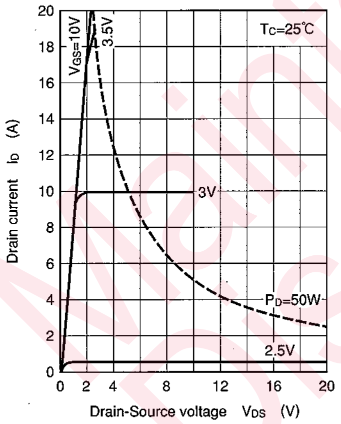
P_D — Ta



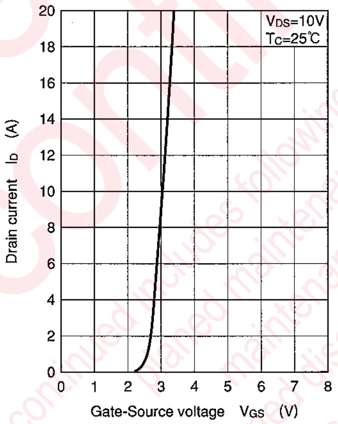
IAS — L-load



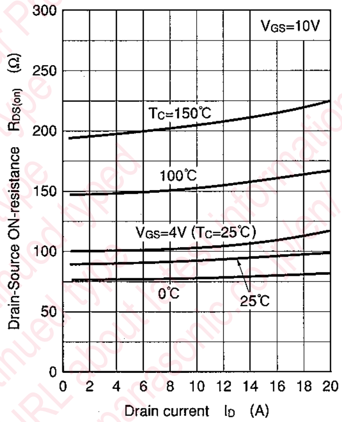
I_D — V_{DS}



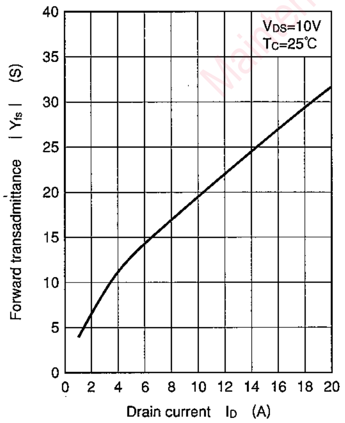
I_D — V_{GS}



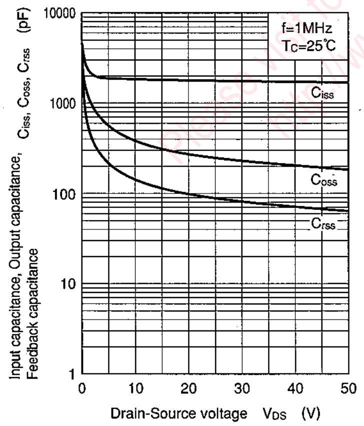
$R_{DS(on)}$ — I_D



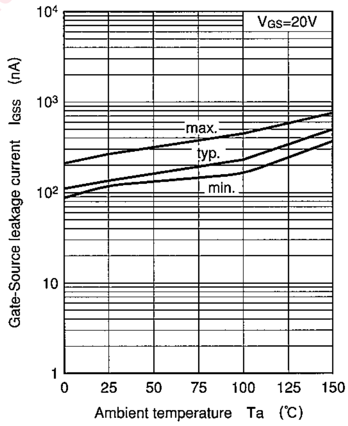
| Y_{fs} | — I_D



C — V_{DS}

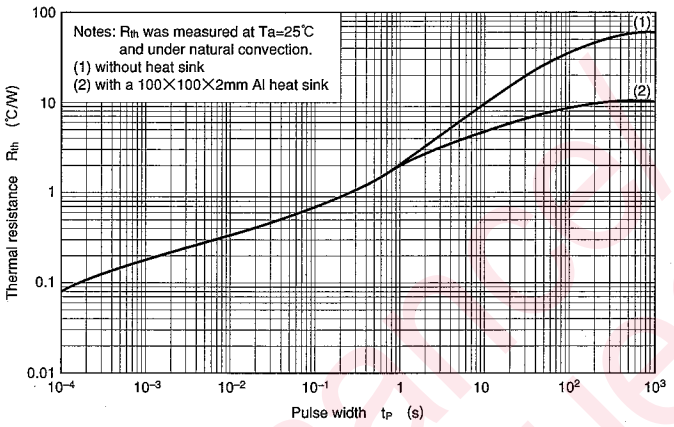


I_{GSS} — Ta



Maintenance/ Discontinued
Maintenance/Discontinued includes following four Product lifecycle stage.
planed maintenance type, maintenance type, planed discontinued typed, discontinued type
Please visit following URL about latest information.
http://www.semicon.panasonic.co.jp/en/

$R_{th} - t_P$



Maintenance/Discontinued
Discontinued includes following four Product lifecycle stage.
planed maintenance type
maintenance type
planed discontinued typed
discontinued type
Please visit following URL about latest information.
http://www.semicon.panasonic.co.jp/en/

Request for your special attention and precautions in using the technical information and semiconductors described in this book

(1) If any of the products or technical information described in this book is to be exported or provided to non-residents, the laws and regulations of the exporting country, especially, those with regard to security export control, must be observed.

(2) The technical information described in this book is intended only to show the main characteristics and application circuit examples of the products. No license is granted in and to any intellectual property right or other right owned by Panasonic Corporation or any other company. Therefore, no responsibility is assumed by our company as to the infringement upon any such right owned by any other company which may arise as a result of the use of technical information described in this book.

(3) The products described in this book are intended to be used for standard applications or general electronic equipment (such as office equipment, communications equipment, measuring instruments and household appliances).
Consult our sales staff in advance for information on the following applications:
- Special applications (such as for airplanes, aerospace, automobiles, traffic control equipment, combustion equipment, life support systems and safety devices) in which exceptional quality and reliability are required, or if the failure or malfunction of the products may directly jeopardize life or harm the human body.
- Any applications other than the standard applications intended.

(4) The products and product specifications described in this book are subject to change without notice for modification and/or improvement. At the final stage of your design, purchasing, or use of the products, therefore, ask for the most up-to-date Product Standards in advance to make sure that the latest specifications satisfy your requirements.

(5) When designing your equipment, comply with the range of absolute maximum rating and the guaranteed operating conditions (operating power supply voltage and operating environment etc.). Especially, please be careful not to exceed the range of absolute maximum rating on the transient state, such as power-on, power-off and mode-switching. Otherwise, we will not be liable for any defect which may arise later in your equipment.
 Even when the products are used within the guaranteed values, take into the consideration of incidence of break down and failure mode, possible to occur to semiconductor products. Measures on the systems such as redundant design, arresting the spread of fire or preventing glitch are recommended in order to prevent physical injury, fire, social damages, for example, by using the products.

(6) Comply with the instructions for use in order to prevent breakdown and characteristics change due to external factors (ESD, EOS, thermal stress and mechanical stress) at the time of handling, mounting or at customer's process. When using products for which damp-proof packing is required, satisfy the conditions, such as shelf life and the elapsed time since first opening the packages.

(7) This book may be not reprinted or reproduced whether wholly or partially, without the prior written permission of our company.

20080805

Maintenance/Discontinued includes following Products
planed maintenance type
maintenance type
planed discontinued type
discontinued type
Please visit following URL about latest information.
http://www.semicon.panasonic.co.jp/en/
Maintenance/Discontinued

littlediode
COMPONENTS FOR ALL

Littlediode supplies new, hard to find or obsolete electronic components and semiconductors all over the world.

With over two million different components listed you are sure to find the part you need.

Feel free to visit us today at our online store:

LittleDiode.com

Looking forward to providing you with the best possible service.