

# 2SK2225

1500V - 2A - MOS FET  
High Speed Power Switching

R07DS1358EJ0400  
Rev.4.00  
Dec 06, 2017

## Application

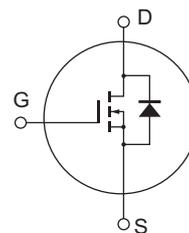
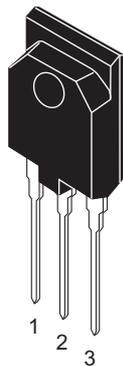
High speed power switching

## Features

- High breakdown voltage ( $V_{DSS} = 1500\text{ V}$ )
- High speed switching
- Low drive current
- No Secondary breakdown
- Suitable for switching regulator, DC-DC converter

## Outline

RENESAS Package code: PRSS0003ZA-A  
(Package name: TO-3PFM)



1. Gate
2. Drain
3. Source

## Absolute Maximum Ratings

( $T_a = 25^\circ\text{C}$ )

Item	Symbol	Ratings	Unit
Drain to source voltage	$V_{DSS}$	1500	V
Gate to source voltage	$V_{GSS}$	$\pm 20$	V
Drain current	$I_D$	2	A
Drain peak current	$I_{D(pulse)}^{*1}$	7	A
Body to drain diode reverse drain current	$I_{DR}$	2	A
Channel dissipation	$P_{ch}^{*2}$	50	W
Channel temperature	$T_{ch}$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

- Notes: 1.  $PW \leq 10\ \mu\text{s}$ , duty cycle  $\leq 1\%$   
2. Value at  $T_c = 25^\circ\text{C}$

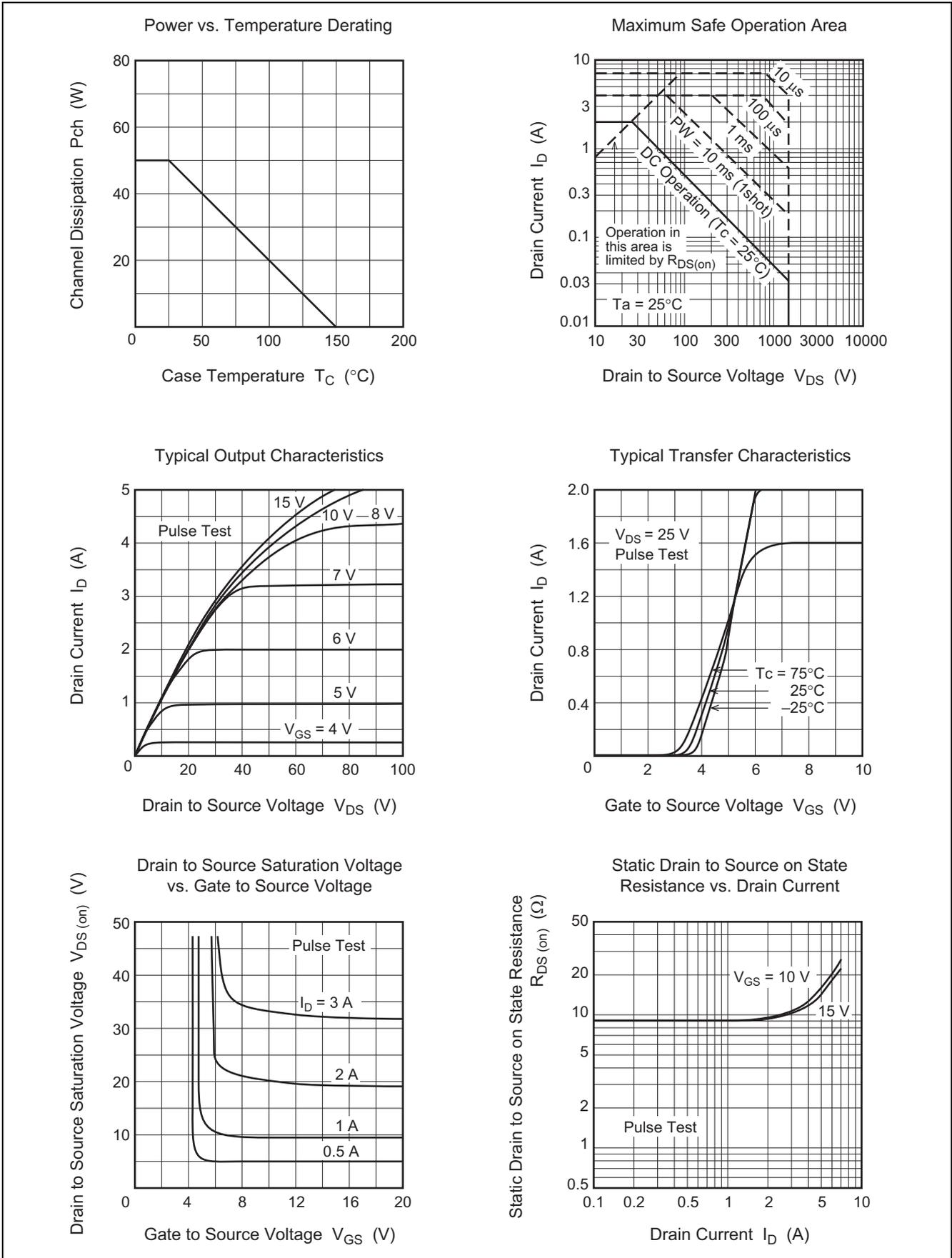
## Electrical Characteristics

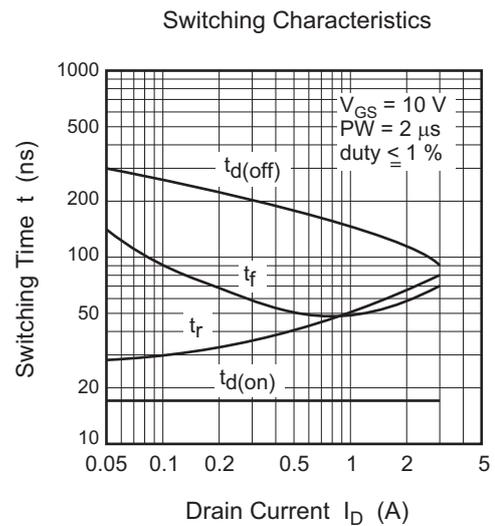
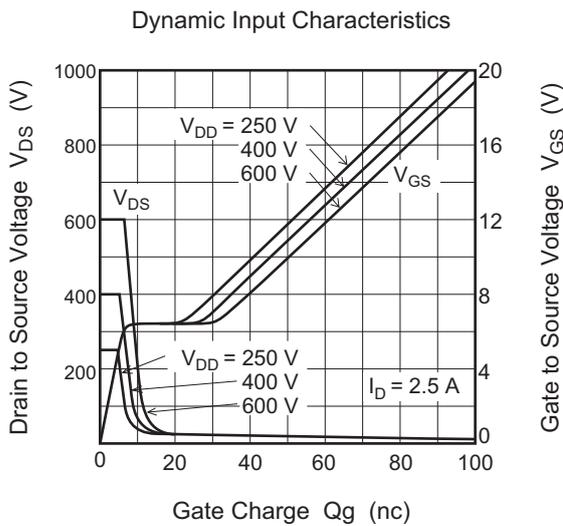
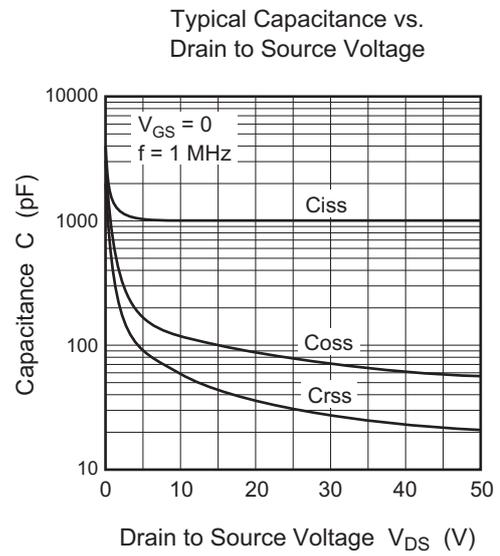
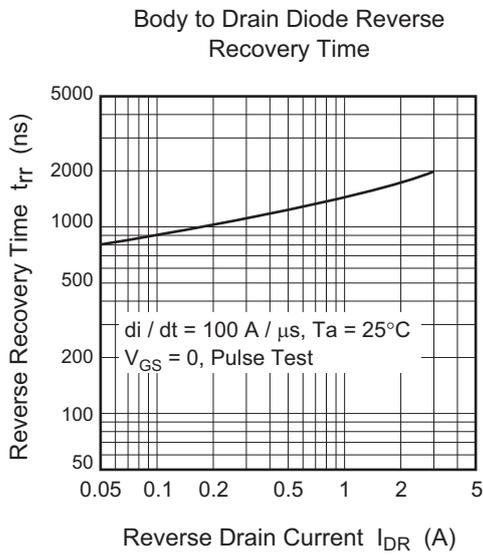
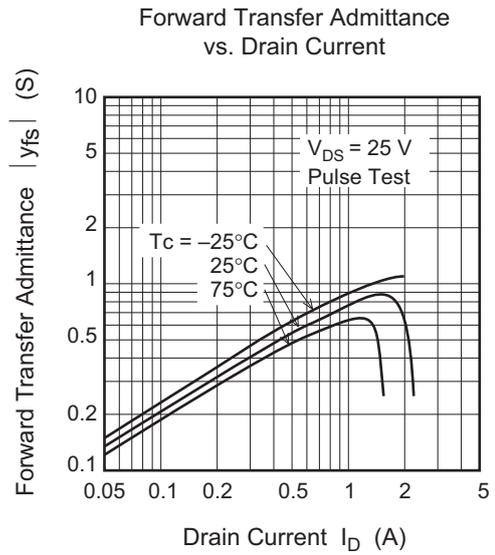
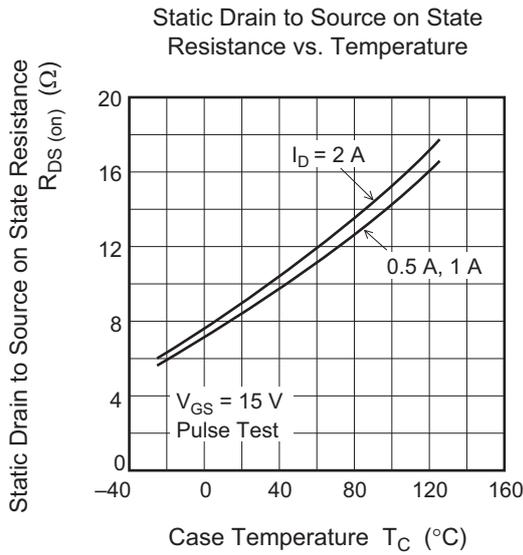
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	1500	—	—	V	$I_D = 10 \text{ mA}$ , $V_{GS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	$\pm 1$	$\mu\text{A}$	$V_{GS} = \pm 20 \text{ V}$ , $V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	500	$\mu\text{A}$	$V_{DS} = 1200 \text{ V}$ , $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	2.0	—	4.0	V	$I_D = 1 \text{ mA}$ , $V_{DS} = 10 \text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	9	12	$\Omega$	$I_D = 1 \text{ A}$ , $V_{GS} = 15 \text{ V}^{*3}$
Forward transfer admittance	$ y_{fs} $	0.45	0.75	—	S	$I_D = 1 \text{ A}$ , $V_{DS} = 20 \text{ V}^{*3}$
Input capacitance	$C_{iss}$	—	990	—	pF	$V_{DS} = 10 \text{ V}$ , $V_{GS} = 0$ , $f = 1 \text{ MHz}$
Output capacitance	$C_{oss}$	—	125	—	pF	
Reverse transfer capacitance	$C_{rss}$	—	60	—	pF	
Turn-on delay time	$t_{d(on)}$	—	17	—	ns	$I_D = 1 \text{ A}$ , $V_{GS} = 10 \text{ V}$ , $R_L = 30 \Omega$
Rise time	$t_r$	—	50	—	ns	
Turn-off delay time	$t_{d(off)}$	—	150	—	ns	
Fall time	$t_f$	—	50	—	ns	
Body to drain diode forward voltage	$V_{DF}$	—	0.9	—	V	$I_F = 2 \text{ A}$ , $V_{GS} = 0$
Body to drain diode reverse recovery time	$t_{rr}$	—	1750	—	ns	$I_F = 2 \text{ A}$ , $V_{GS} = 0$ , $di_F / dt = 100 \text{ A} / \mu\text{s}$

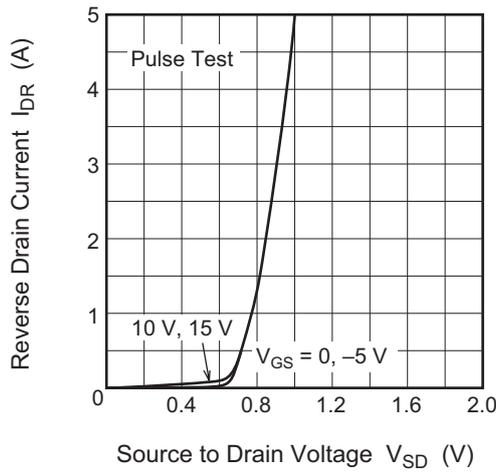
Note: 3. Pulse Test

## Main Characteristics

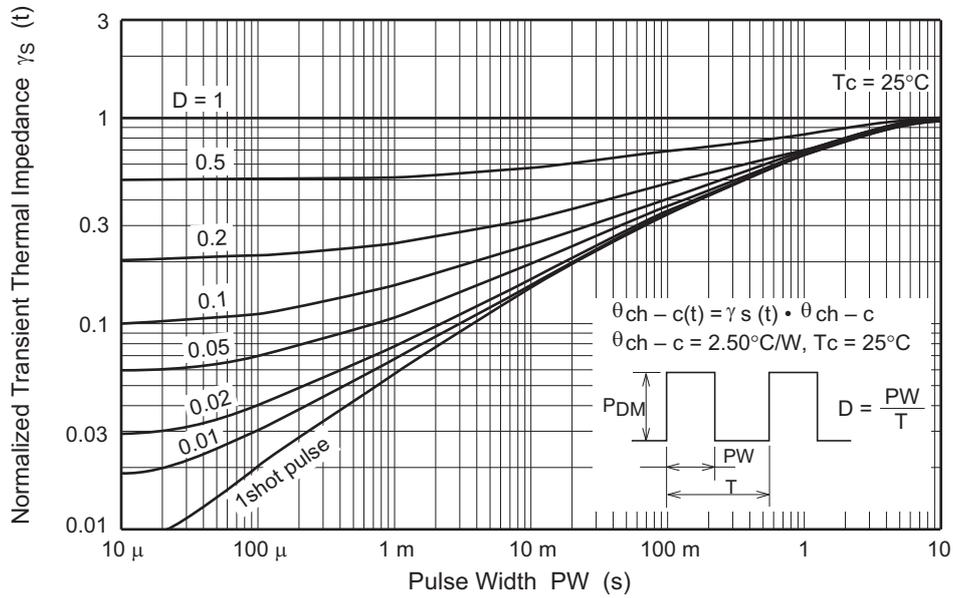




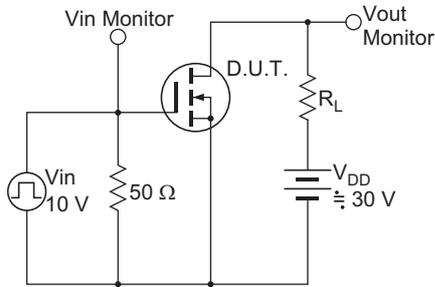
Reverse Drain Current vs. Source to Drain Voltage



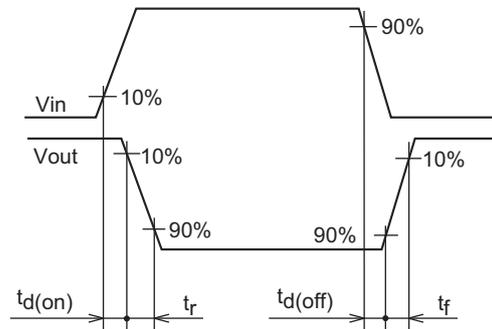
Normalized Transient Thermal Impedance vs. Pulse Width



Switching Time Test Circuit



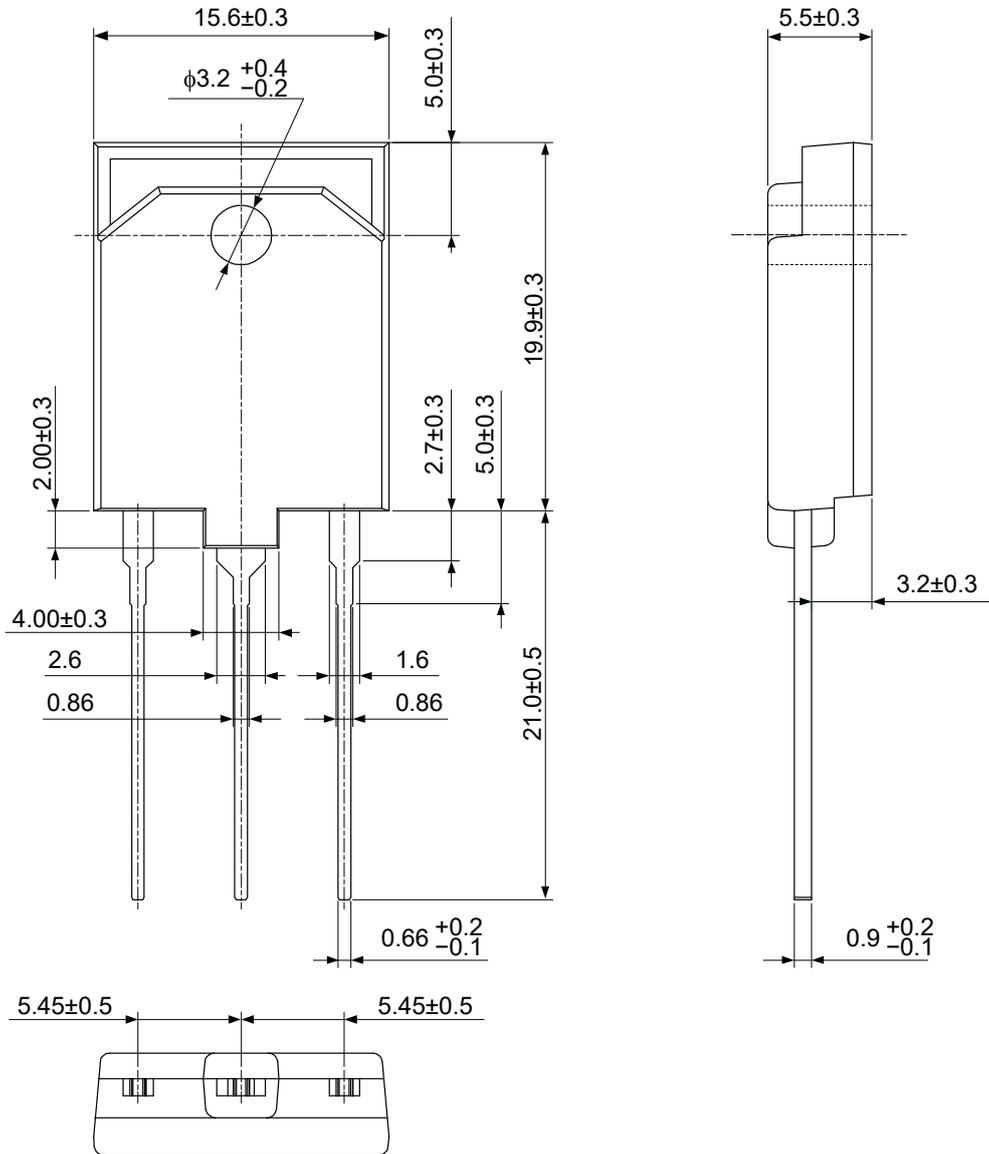
Waveforms



**Package Dimensions**

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS (Typ) [g]
TO-3PFM	SC-93	PRSS0003ZA-A	TO-3PFM / TO-3PFMV	5.2

Unit: mm



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**Ordering Information**

Orderable Part No.	Quantity	Shipping Container
2SK2225-E	360 pcs	Box (Tube)

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