

2SK2393

Silicon N Channel MOS FET

REJ03G1010-0300

Rev.3.00

Apr 28, 2009

Application

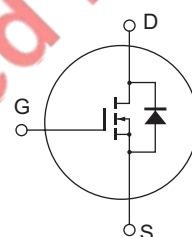
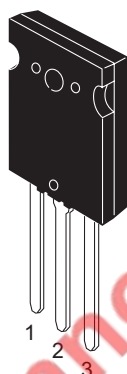
High voltage / High speed power switching

Features

- Low on-resistance, High breakdown voltage
- High speed switching
- Low drive current
- No secondary breakdown
- Suitable for switching regulator, motor control

Outline

RENESAS Package code: PRSS0004ZF-A
(Package name: TO-3PL)



1. Gate
2. Drain
(Flange)
3. Source

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	1500	V
Gate to source voltage	V_{GSS}	± 20	V
Drain current	I_D	8	A
Drain peak current	$I_{D(pulse)}^{*1}$	20	A
Body to drain diode reverse drain current	I_{DR}	8	A
Channel dissipation	P_{ch}^{*2}	200	W
Channel temperature	T_{ch}	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

Notes: 1. $PW \leq 10 \mu s$, duty cycle $\leq 1 \%$

2. Value at $T_c = 25^\circ C$

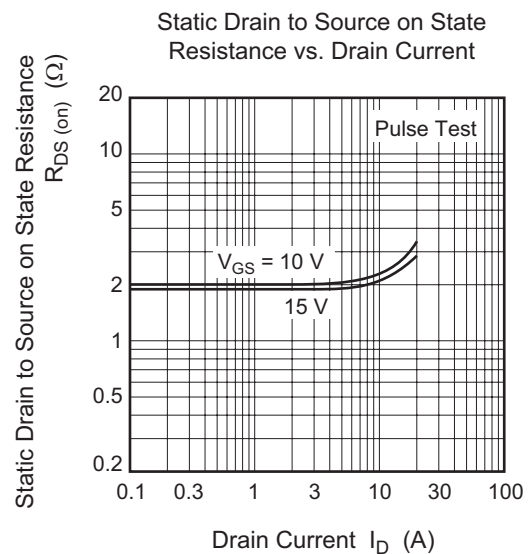
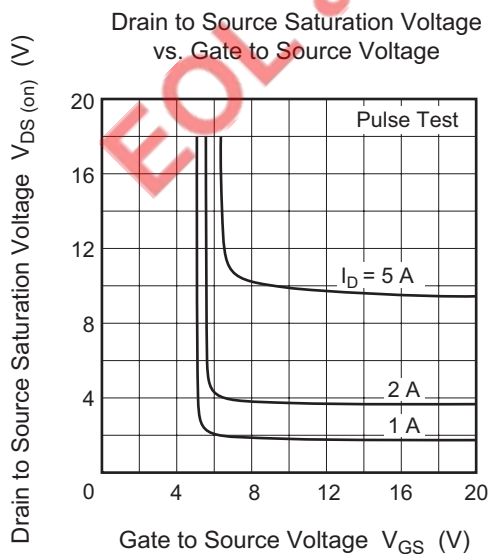
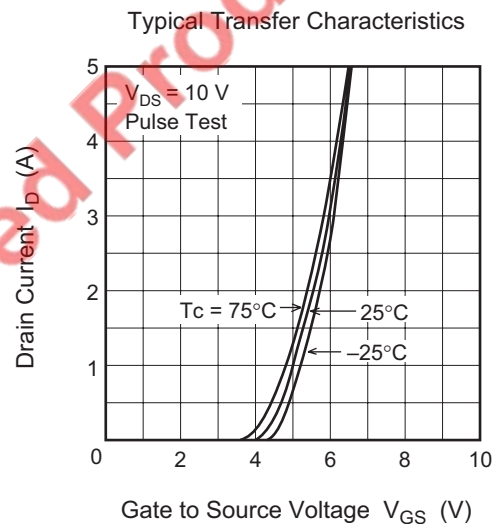
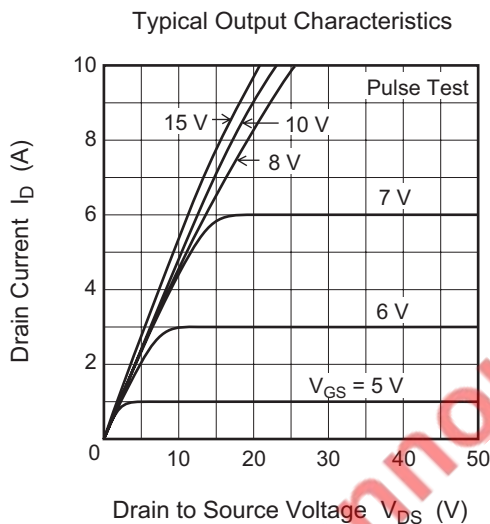
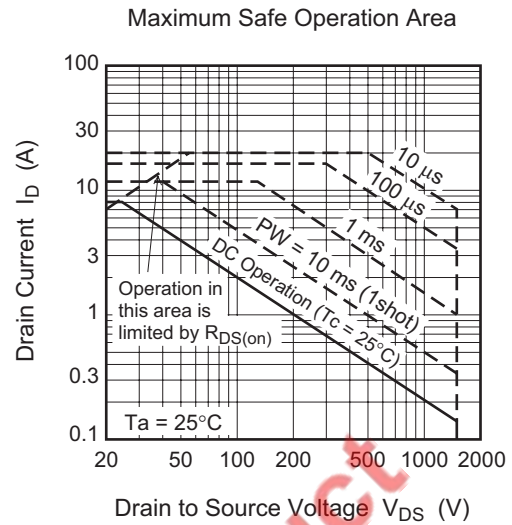
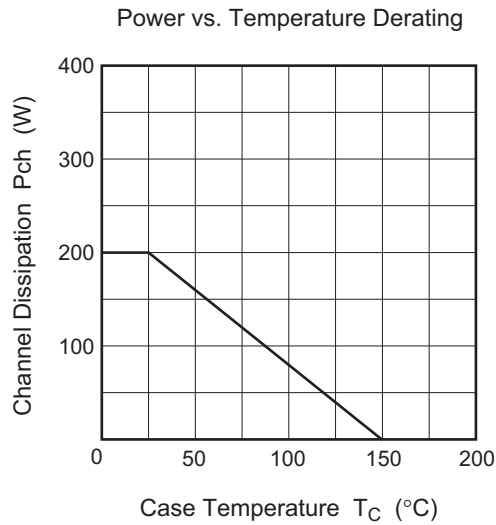
Electrical Characteristics

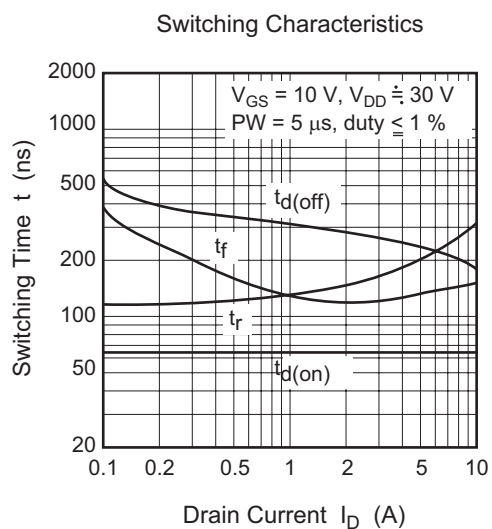
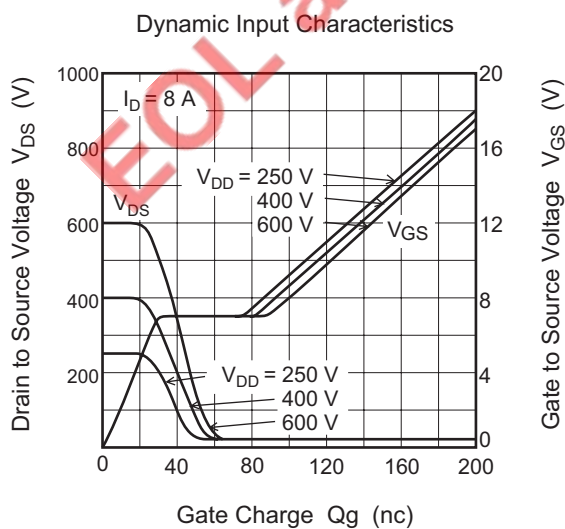
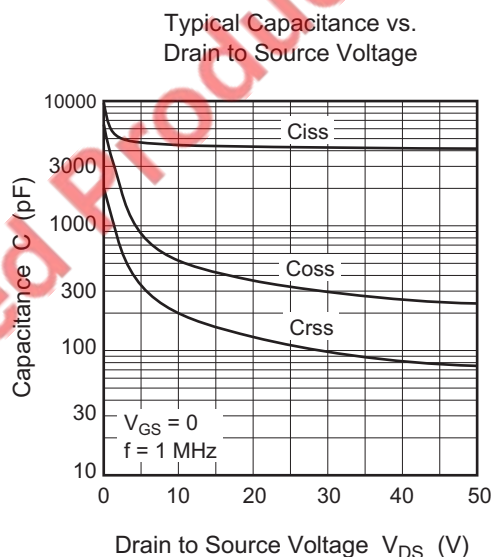
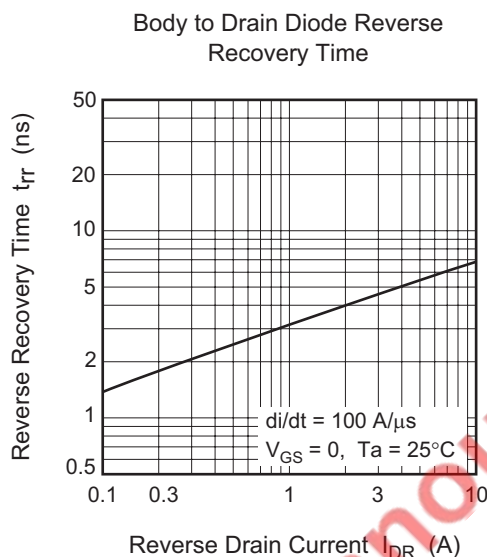
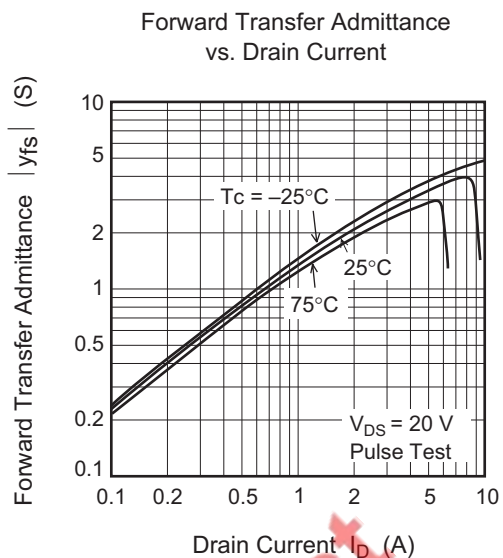
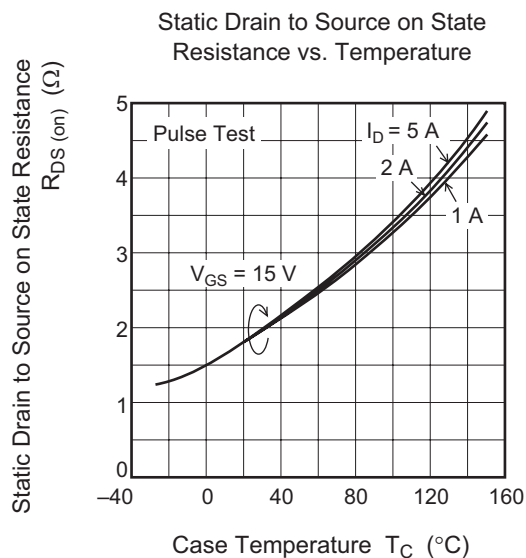
(Ta = 25°C)

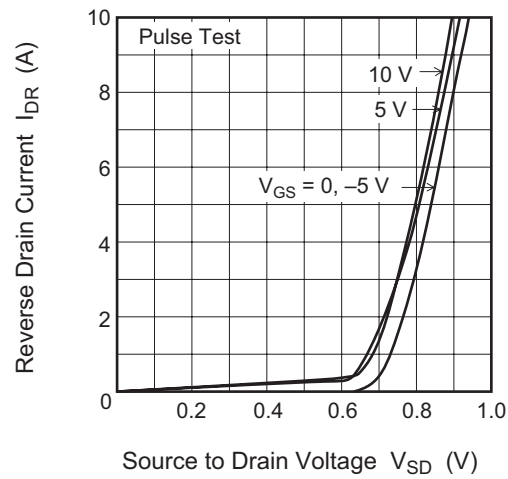
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	1500	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0^{*1}$
Gate to source leak current	I_{GSS}	—	—	± 1	μA	$V_{GS} = \pm 20 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	500	μA	$V_{DS} = 1200 \text{ V}$, $V_{GS} = 0$
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	$R_{DS(on)}$	—	1.9	2.8	Ω	$I_D = 4 \text{ A}$, $V_{GS} = 15 \text{ V}^{*3}$
Forward transfer admittance	$ y_{fs} $	1.8	3.0	—	S	$I_D = 4 \text{ A}$, $V_{DS} = 20 \text{ V}^{*3}$
Input capacitance	C_{iss}	—	4370	—	pF	$V_{DS} = 10 \text{ V}$, $V_{GS} = 0$, $f = 1 \text{ MHz}$
Output capacitance	C_{oss}	—	560	—	pF	
Reverse transfer capacitance	C_{rss}	—	200	—	pF	
Turn-on delay time	$t_{d(on)}$	—	75	—	ns	$I_D = 4 \text{ A}$, $V_{GS} = 10 \text{ V}$, $R_L = 7.5 \Omega$
Rise time	t_r	—	180	—	ns	
Turn-off delay time	$t_{d(off)}$	—	260	—	ns	
Fall time	t_f	—	125	—	ns	
Body to drain diode forward voltage	V_{DF}	—	0.9	—	V	$I_F = 8 \text{ A}$, $V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	6.5	—	μs	$I_F = 8 \text{ A}$, $V_{GS} = 0$, $di_F / dt = 100 \text{ A} / \mu\text{s}$

Note: 3. Pulse Test

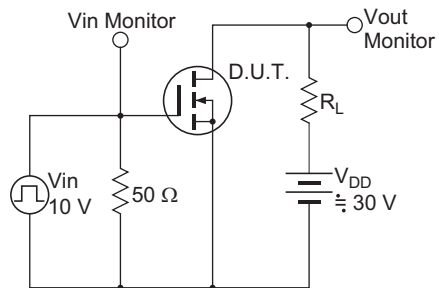
Main Characteristics



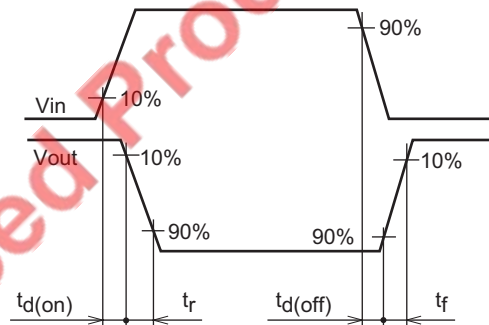


Reverse Drain Current vs.
Source to Drain Voltage

Switching Time Test Circuit



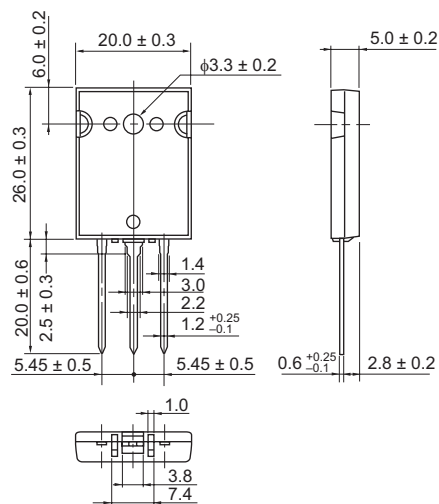
Waveforms



Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
TO-3PL	—	PRSS0004ZF-A	TO-3PL / TO-3PLV	9.9g

Unit: mm



Ordering Information

Part Name	Quantity	Shipping Container
2SK2393-E	250 pcs	Box (Tube)

Notes:

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