

## 2SK1835

### Silicon N Channel MOS FET

REJ03G0978-0400

Rev.4.00

Jun 04, 2008

### Application

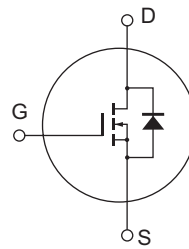
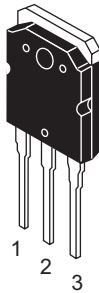
High speed power switching

### Features

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

### Outline

RENESAS Package code: PRSS0004ZE-A  
(Package name: TO-3P)



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	$V_{GSS}$	$\pm 20$	V
Drain current	$I_D$	4	A
Drain peak current	$I_{D(pulse)}$ <sup>Note1</sup>	10	A
Body to drain diode reverse drain current	$I_{DR}$	4	A
Channel dissipation	$P_{ch}$ <sup>Note2</sup>	125	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  $T_c = 25^\circ C$

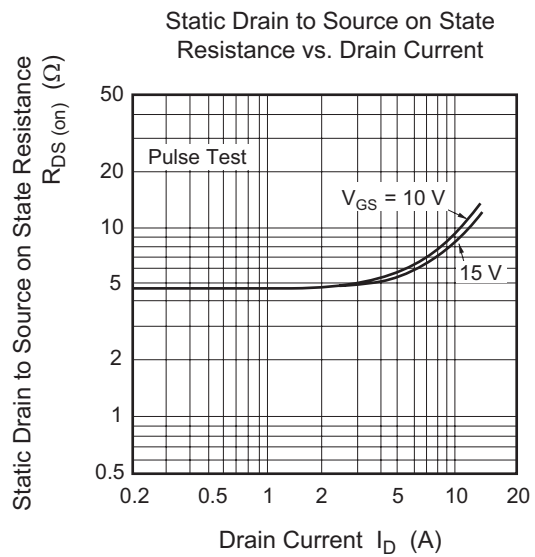
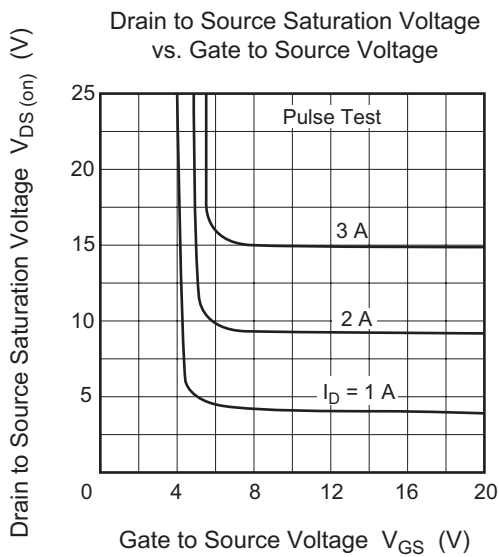
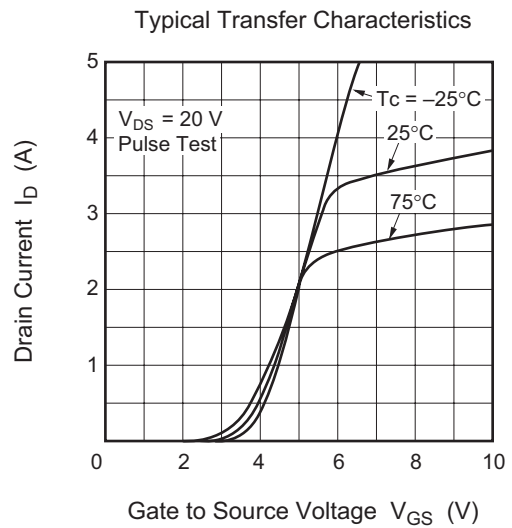
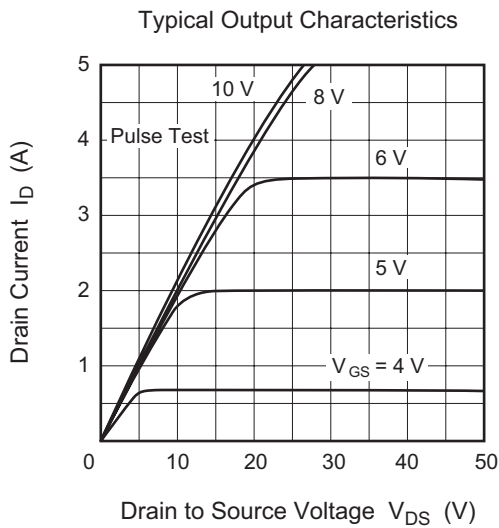
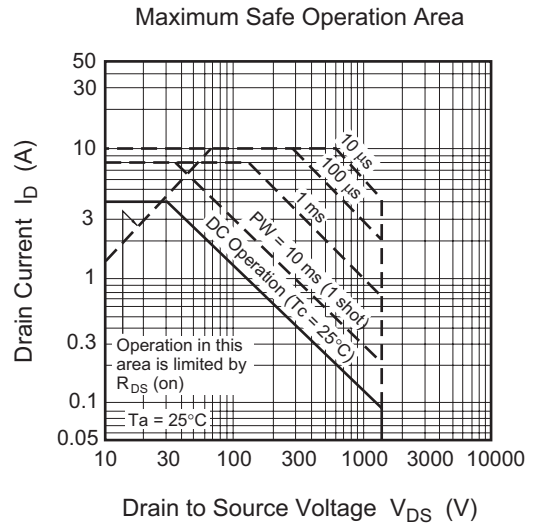
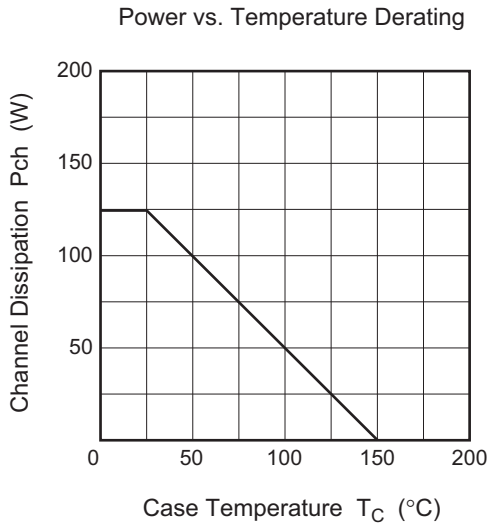
## Electrical Characteristics

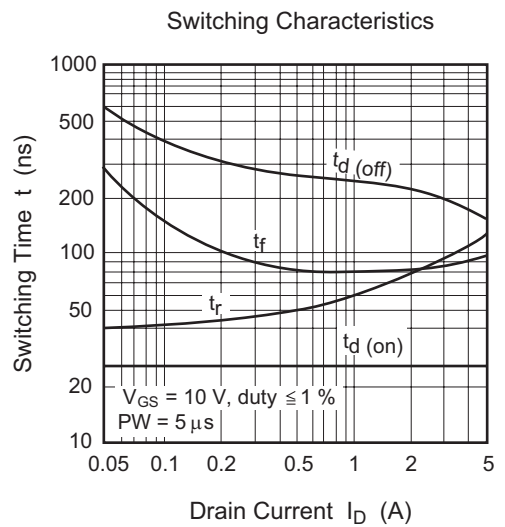
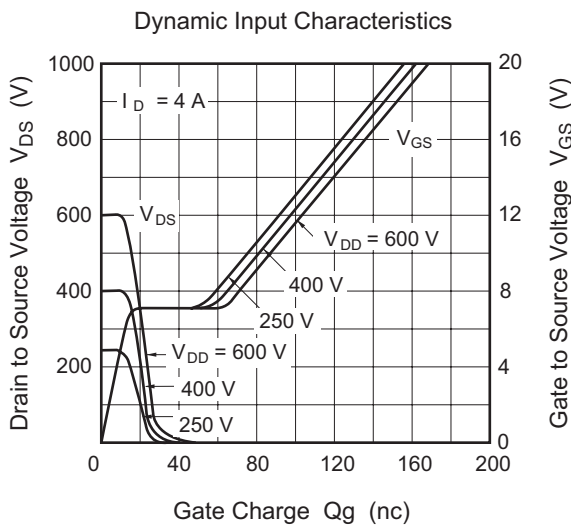
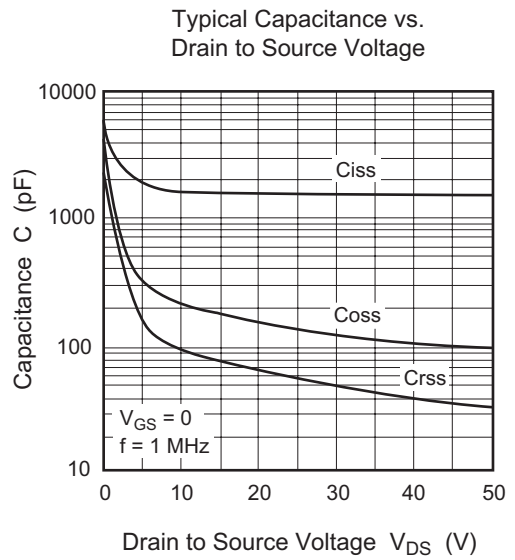
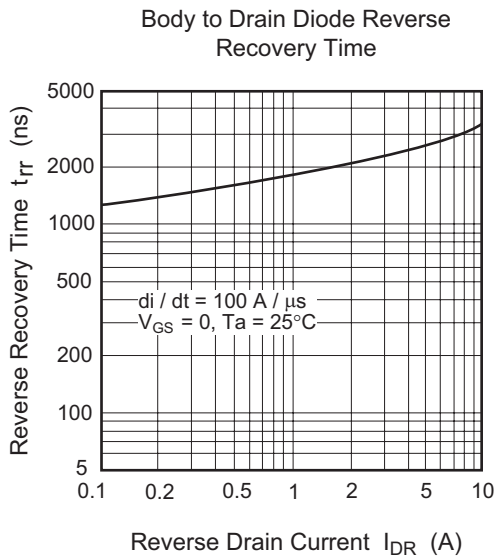
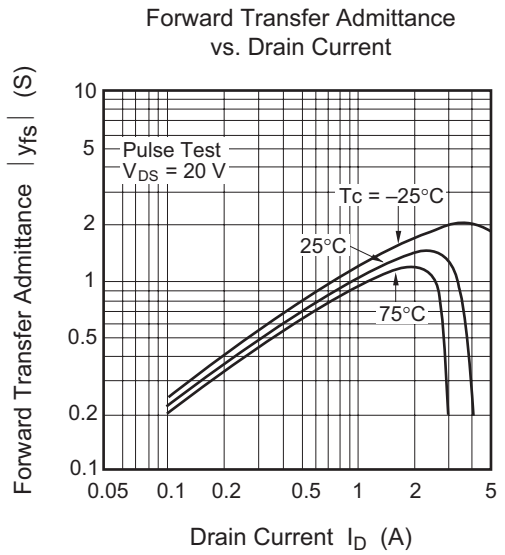
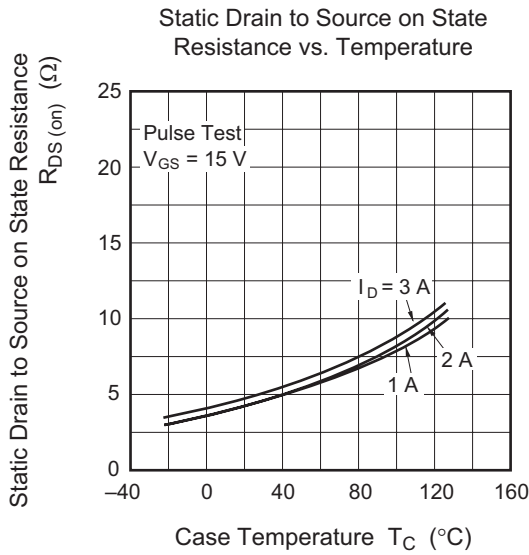
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	1500	—	—	V	$I_D = 10 \text{ mA}$ , $V_{GS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	$\pm 1$	$\mu A$	$V_{GS} = \pm 20 \text{ V}$ , $V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	500	$\mu A$	$V_{DS} = 1200 \text{ V}$ , $V_{GS} = 0$
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	$R_{DS(on)}$	—	4.6	7.0	$\Omega$	$I_D = 2 \text{ A}$ , $V_{GS} = 15 \text{ V}$ <sup>Note 3</sup>
Forward transfer admittance	$ y_{fs} $	0.9	1.4	—	S	$I_D = 2 \text{ A}$ , $V_{DS} = 20 \text{ V}$ <sup>Note 3</sup>
Input capacitance	$C_{iss}$	—	1700	—	pF	$V_{DS} = 10 \text{ V}$ , $V_{GS} = 0$ , $f = 1 \text{ MHz}$
Output capacitance	$C_{oss}$	—	230	—	pF	
Reverse transfer capacitance	$C_{rss}$	—	100	—	pF	
Turn-on delay time	$t_{d(on)}$	—	25	—	ns	$I_D = 2 \text{ A}$ , $V_{GS} = 10 \text{ V}$ , $R_L = 15 \Omega$
Rise time	$t_r$	—	80	—	ns	
Turn-off delay time	$t_{d(off)}$	—	230	—	ns	
Fall time	$t_f$	—	80	—	ns	
Body to drain diode forward voltage	$V_{DF}$	—	0.85	—	V	$I_F = 4 \text{ A}$ , $V_{GS} = 0$
Body to drain diode reverse recovery time	$t_{rr}$	—	2500	—	ns	$I_F = 4 \text{ A}$ , $V_{GS} = 0$ , $di_F/dt = 100 \text{ A}/\mu s$

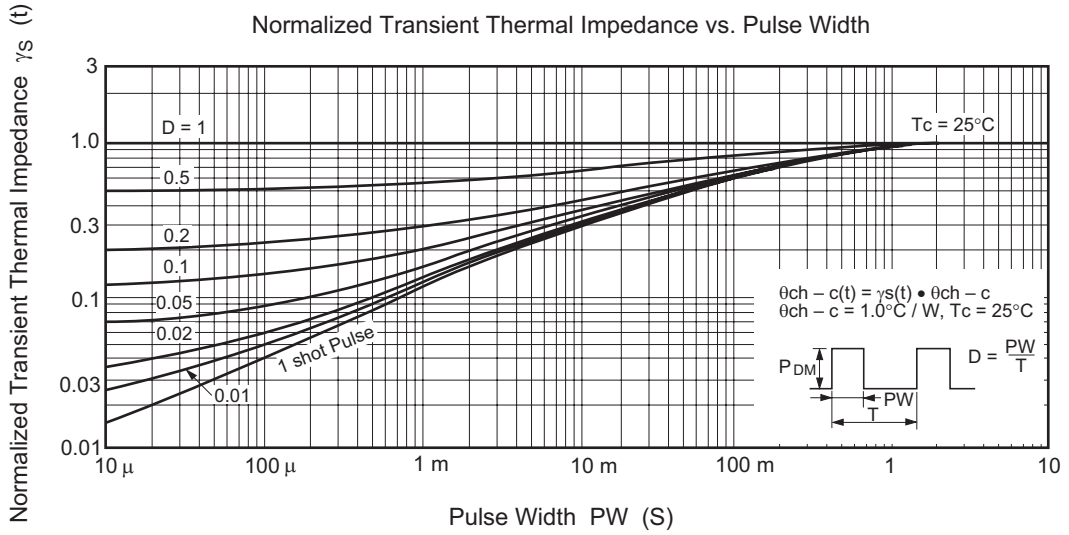
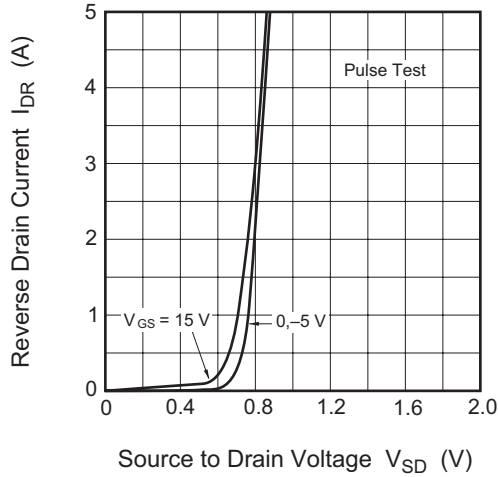
Note: 3. Pulse Test

Main Characteristics

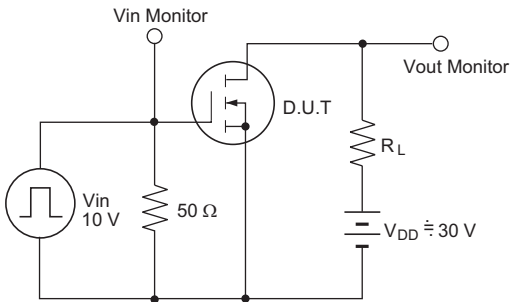




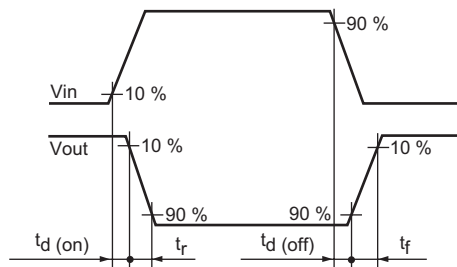
Reverse Drain Current vs. Source to Drain Voltage



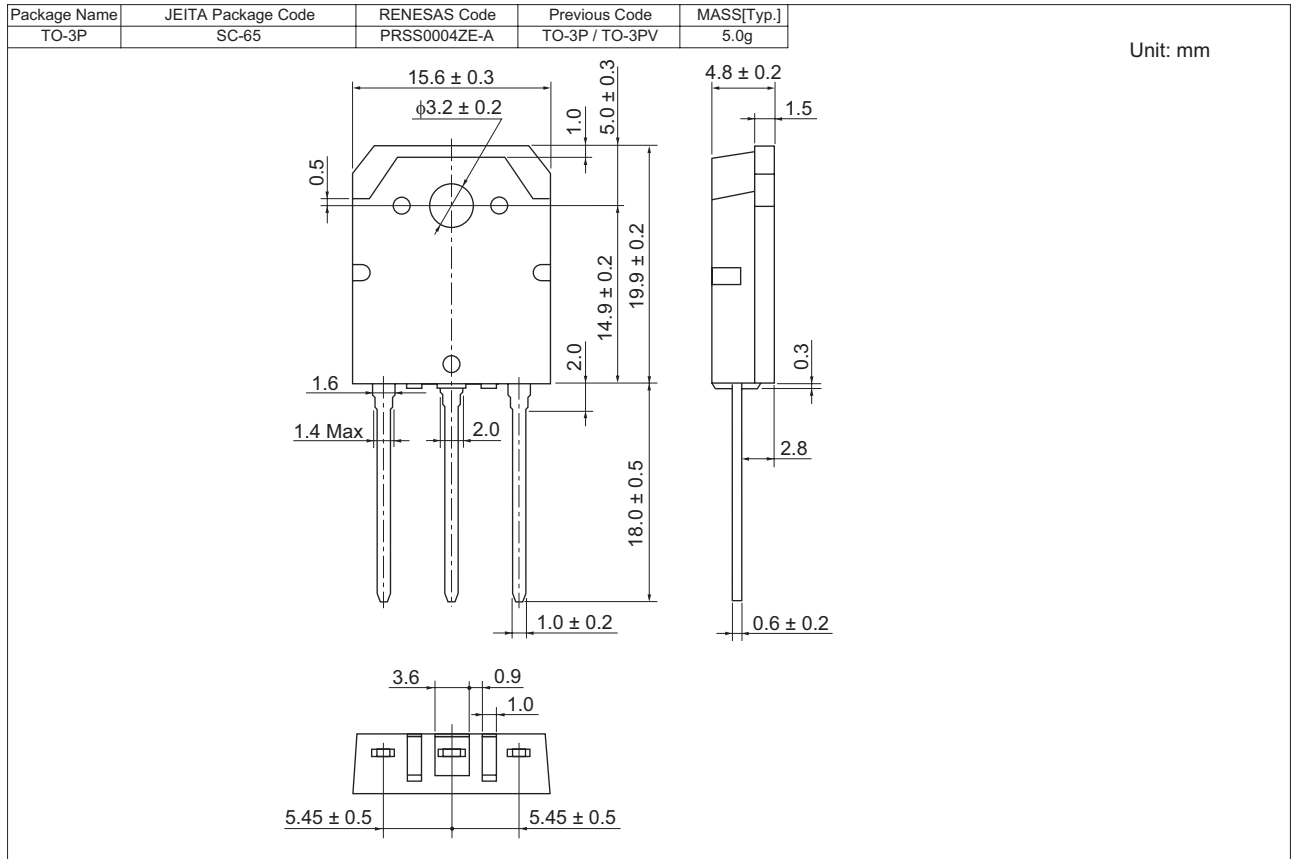
Switching Time Test Circuit



Waveforms



### Package Dimensions



### Ordering Information

Part Name	Quantity	Shipping Container
2SK1835-E	360 pcs	Box (Tube)

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