

## 2SK2736

Silicon N Channel MOS FET  
High Speed Power Switching

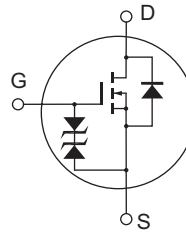
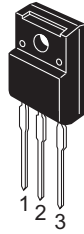
REJ03G1030-0200  
(Previous: ADE-208-544)  
Rev.2.00  
Sep 07, 2005

### Features

- Low on-resistance  
 $R_{DS(on)} = 20 \text{ m}\Omega$  typ. ( $V_{GS} = 10 \text{ V}$ ,  $I_D = 15 \text{ A}$ )
- 4 V gate drive devices.
- High speed switching

### Outline

RENESAS Package code: PRSS0003AE-A  
(Package name: TO-220C•FM)



1. Gate
2. Drain
3. Source

## Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	$V_{DSS}$	30	V
Gate to source voltage	$V_{GSS}$	±20	V
Drain current	$I_D$	30	A
Drain peak current	$I_{D(pulse)}^{*1}$	120	A
Body to drain diode reverse drain current	$I_{DR}$	30	A
Channel dissipation	$P_{ch}^{*2}$	25	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  $T_c = 25^\circ C$

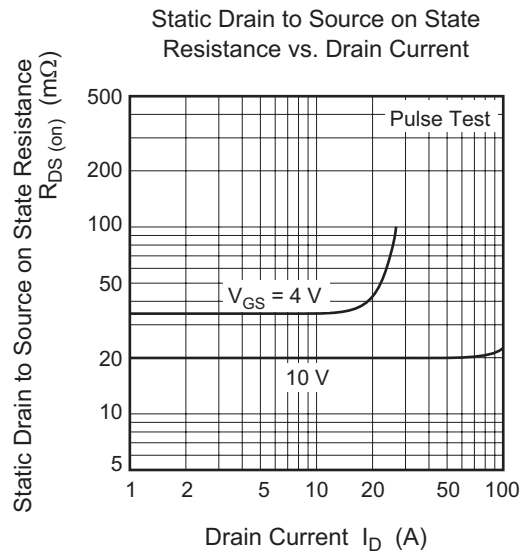
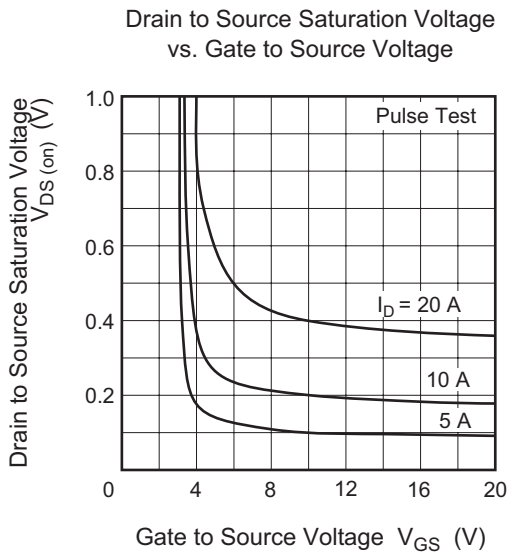
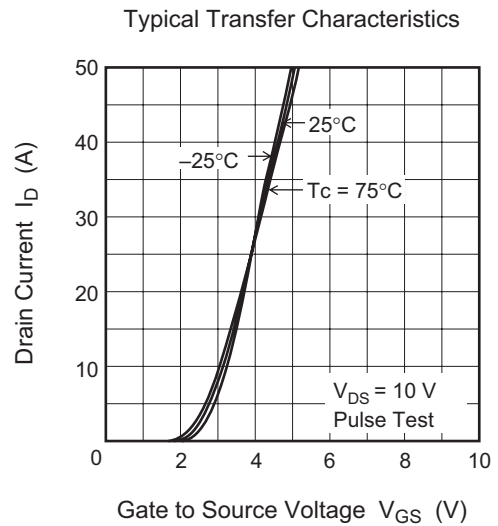
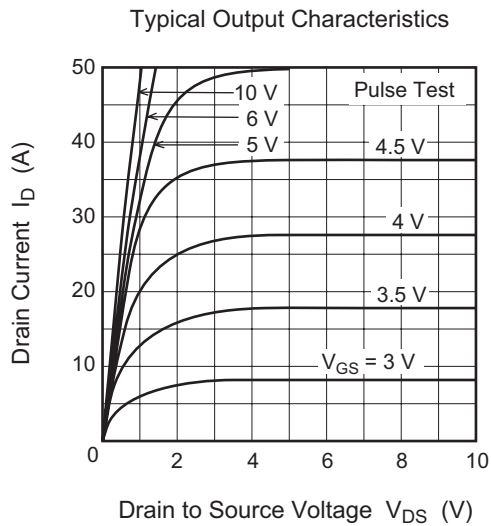
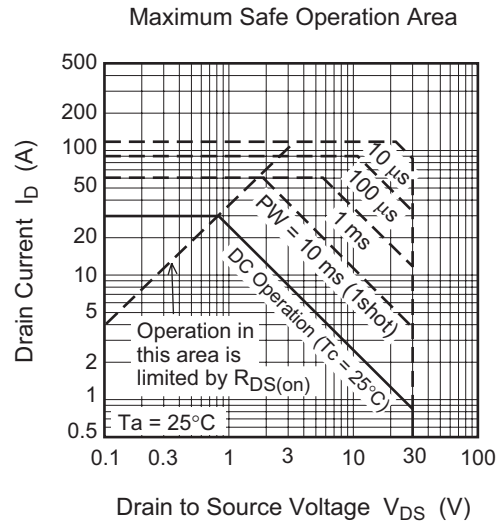
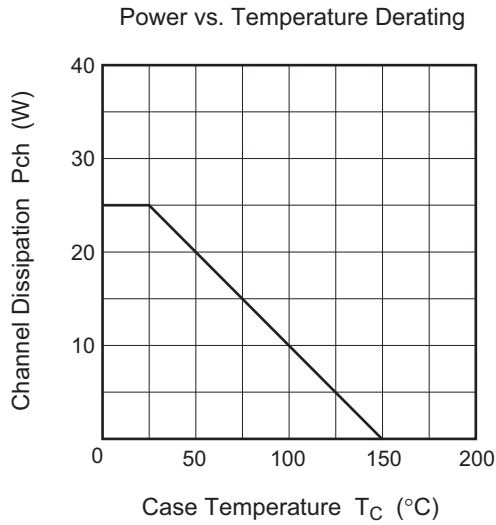
## Electrical Characteristics

(Ta = 25°C)

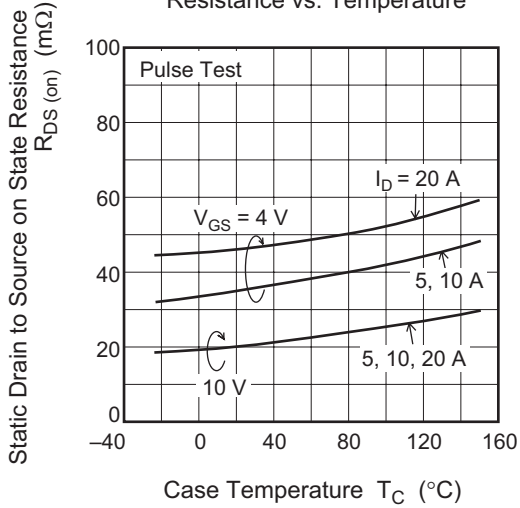
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	30	—	—	V	$I_D = 10\text{ mA}$ , $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	—	—	V	$I_G = \pm 100\ \mu A$ , $V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	10	$\mu A$	$V_{DS} = 30\text{ V}$ , $V_{GS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	±10	$\mu A$	$V_{GS} = \pm 16\text{ V}$ , $V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.0	—	2.0	V	$I_D = 1\text{ mA}$ , $V_{DS} = 10\text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	20	28	$m\Omega$	$I_D = 15\text{ A}$ , $V_{GS} = 10\text{ V}^{*3}$
	$R_{DS(on)}$	—	35	50	$m\Omega$	$I_D = 15\text{ A}$ , $V_{GS} = 4\text{ V}^{*3}$
Forward transfer admittance	$ y_{fs} $	12	18	—	S	$I_D = 15\text{ A}$ , $V_{DS} = 10\text{ V}^{*3}$
Input capacitance	$C_{iss}$	—	750	—	pF	$V_{DS} = 10\text{ V}$ , $V_{GS} = 0$ , $f = 1\text{ MHz}$
Output capacitance	$C_{oss}$	—	520	—	pF	
Reverse transfer capacitance	$C_{rss}$	—	210	—	pF	
Turn-on delay time	$t_{d(on)}$	—	16	—	ns	$V_{GS} = 10\text{ V}$ , $I_D = 15\text{ A}$ , $R_L = 0.67\ \Omega$
Rise time	$t_r$	—	260	—	ns	
Turn-off delay time	$t_{d(off)}$	—	85	—	ns	
Fall time	$t_f$	—	90	—	ns	
Body to drain diode forward voltage	$V_{DF}$	—	1.0	—	V	$I_F = 30\text{ A}$ , $V_{GS} = 0$
Body to drain diode reverse recovery time	$t_{rr}$	—	45	—	ns	$I_F = 30\text{ A}$ , $V_{GS} = 0$ $di_F/dt = 50\text{ A}/\mu s$

Note: 3. Pulse test

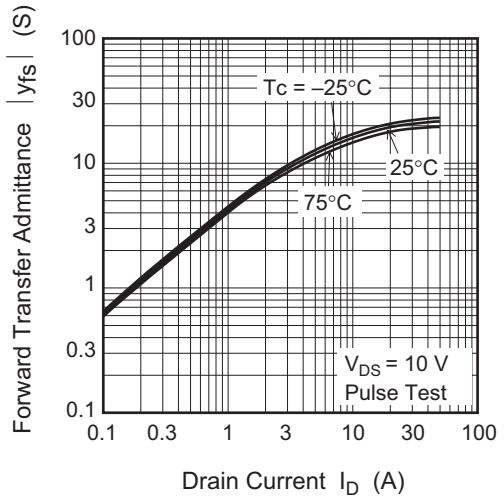
Main Characteristics



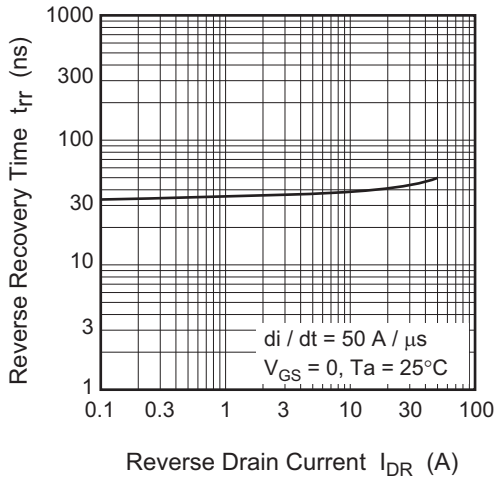
Static Drain to Source on State Resistance vs. Temperature



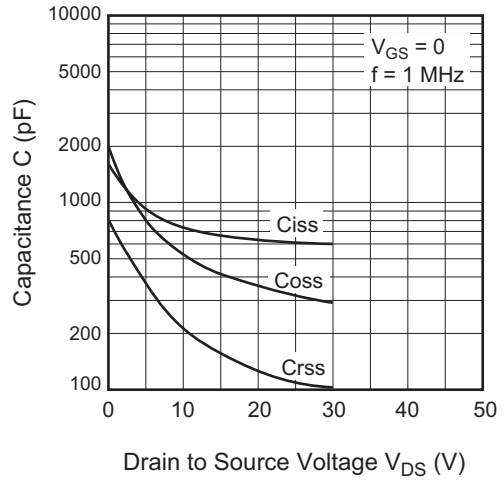
Forward Transfer Admittance vs. Drain Current



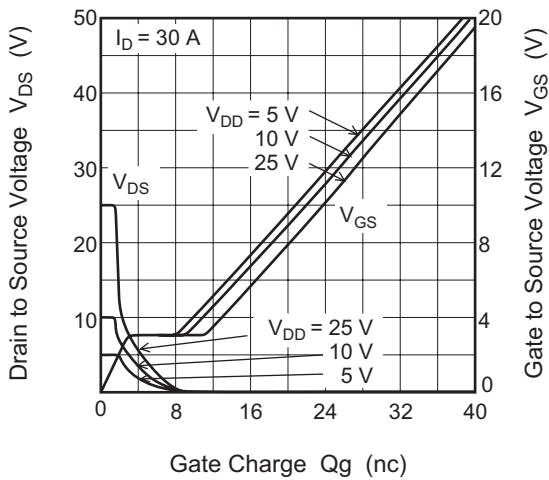
Body to Drain Diode Reverse Recovery Time



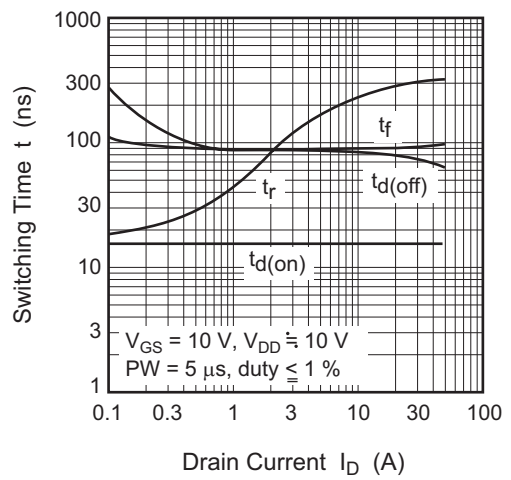
Typical Capacitance vs. Drain to Source Voltage



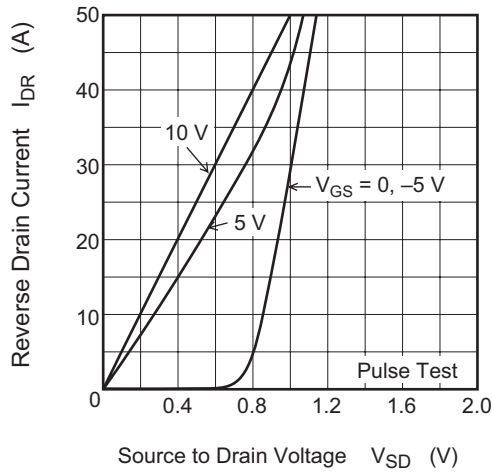
Dynamic Input Characteristics



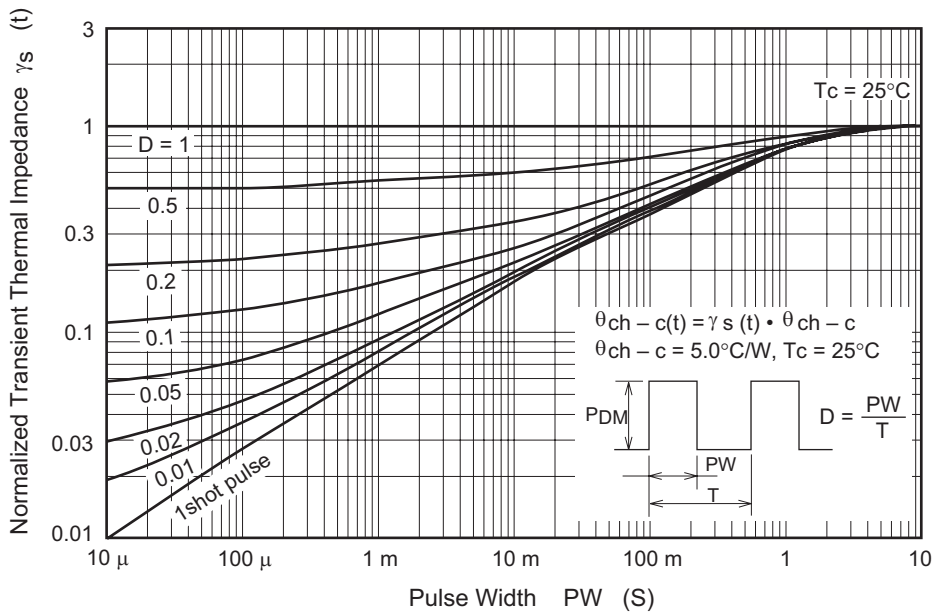
Switching Characteristics



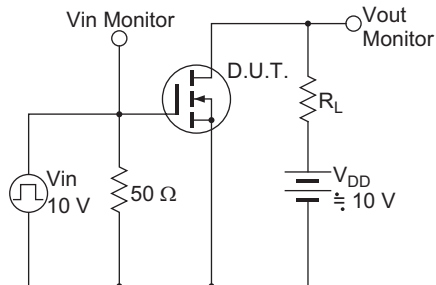
Reverse Drain Current vs. Source to Drain Voltage



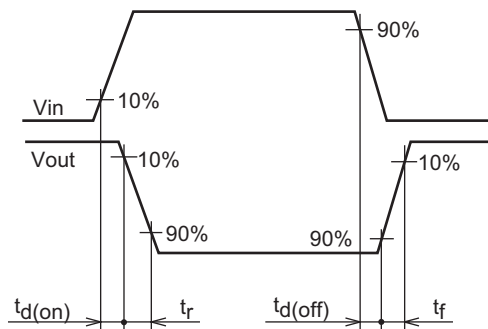
Normalized Transient Thermal Impedance vs. Pulse Width



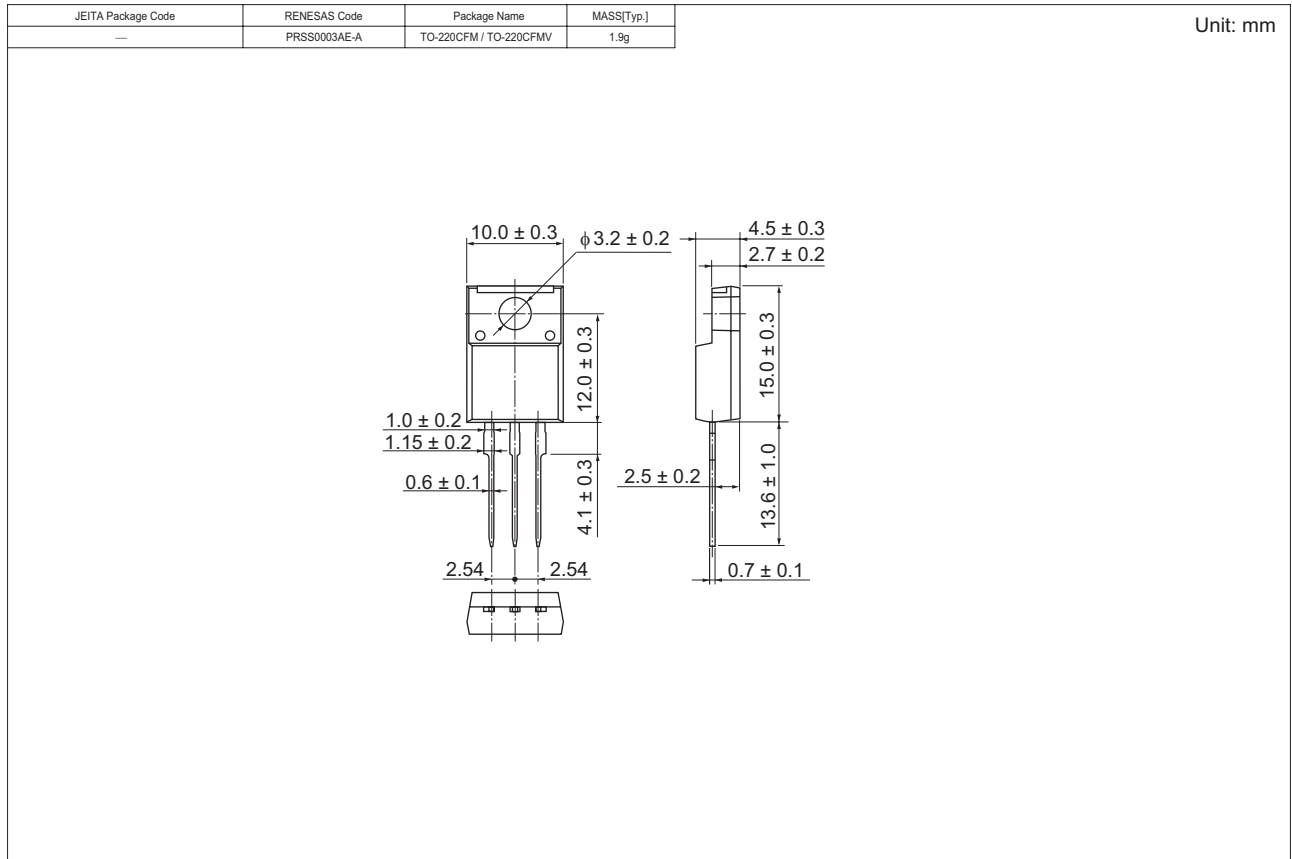
Switching Time Test Circuit



Waveform



## Package Dimensions



## Ordering Information

Part Name	Quantity	Shipping Container
2SK2736-E	50 pcs	Plastic magazine

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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