

## 2SK2956

Silicon N Channel MOS FET  
High Speed Power Switching

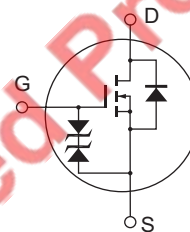
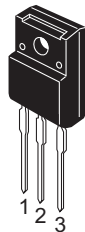
REJ03G1056-0401  
(Previous: ADE-208-566B)  
Rev.4.01  
Apr 27, 2006

### Features

- Low on-resistance  
 $R_{DS(on)} = 7 \text{ m}\Omega$  typ.
- 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	$I_D$	50	A
Drain peak current	$I_{D(pulse)}$ <sup>Note1</sup>	200	A
Body-drain diode reverse drain current	$I_{DR}$	50	A
Channel dissipation	$P_{ch}$ <sup>Note2</sup>	35	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  $T_c = 25^\circ C$

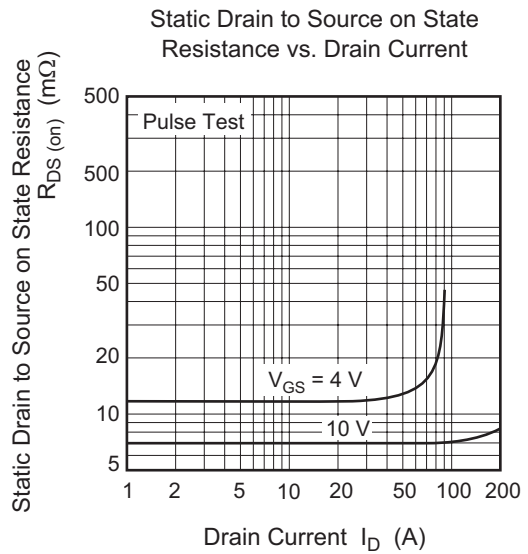
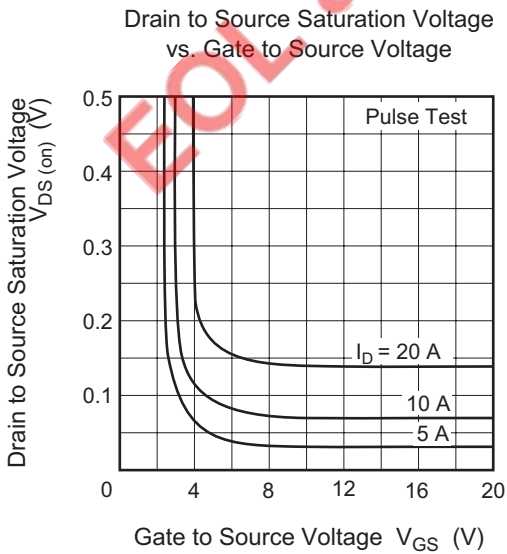
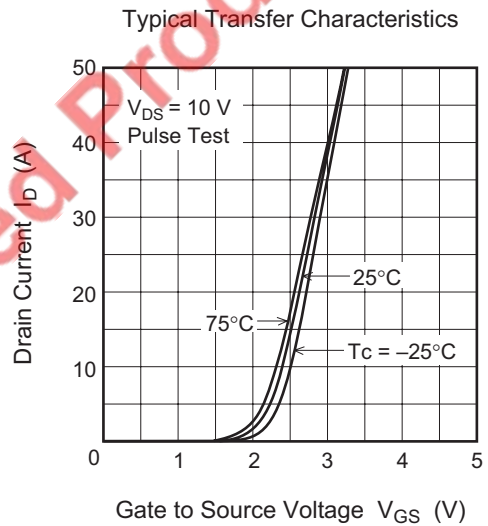
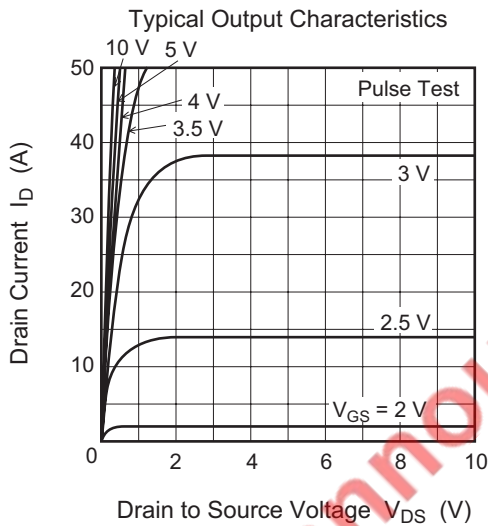
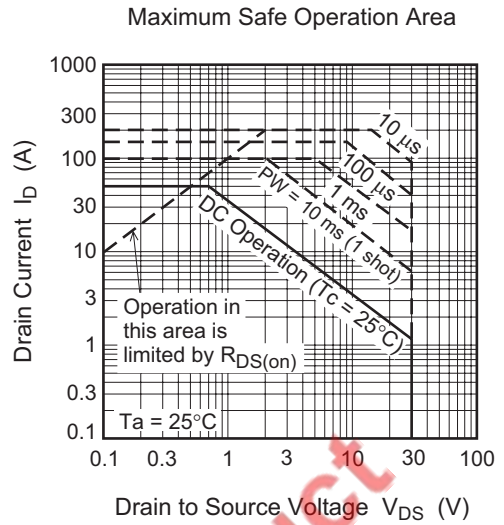
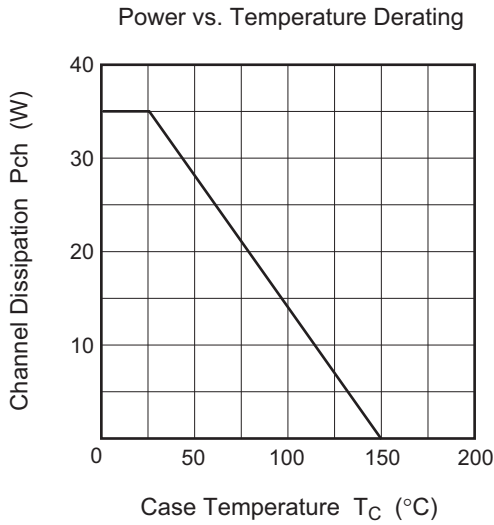
## Electrical Characteristics

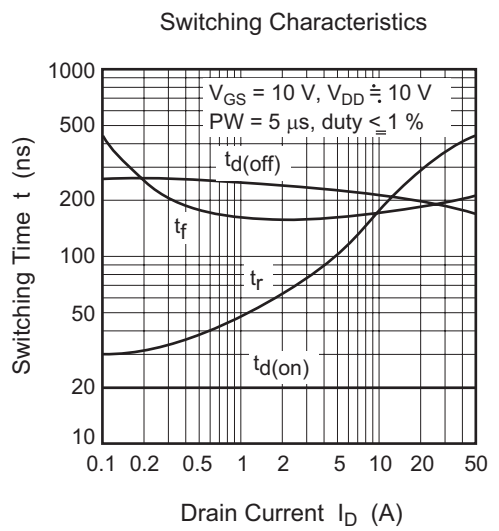
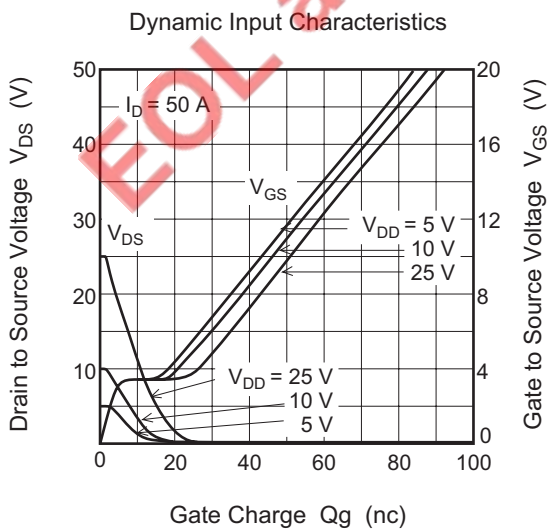
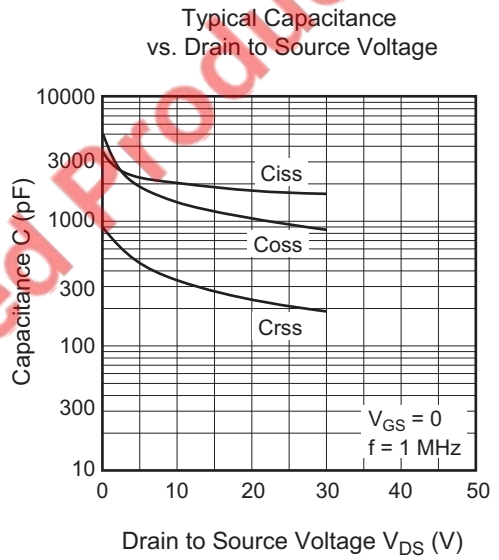
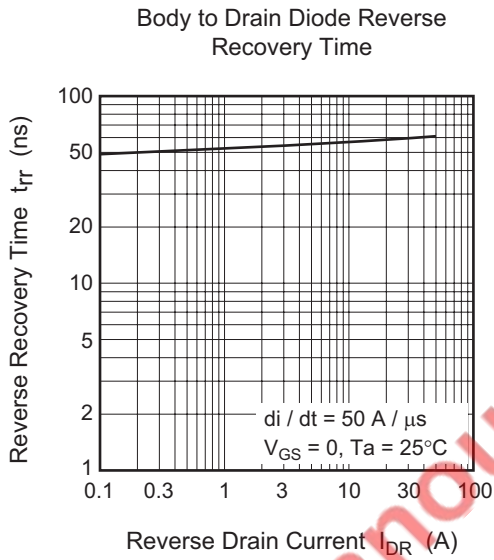
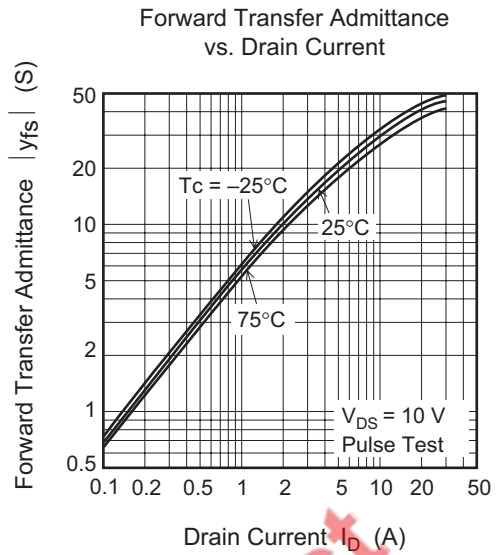
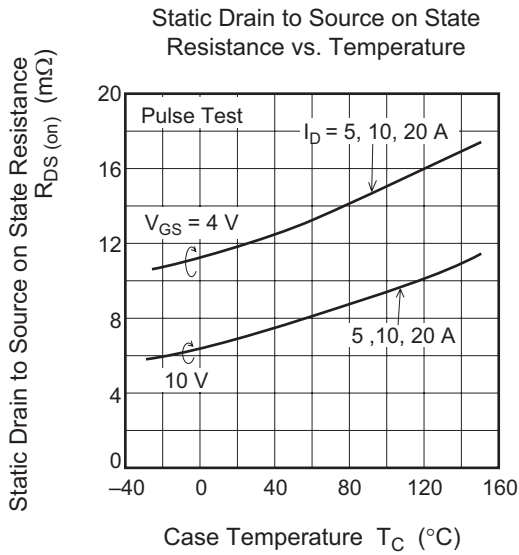
(Ta = 25°C)

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	$R_{DS(on)}$	—	7.0	10	$m\Omega$	$I_D = 25 \text{ A}$ , $V_{GS} = 10 \text{ V}$ <sup>Note3</sup>
	$R_{DS(on)}$	—	12	18	$m\Omega$	$I_D = 25 \text{ A}$ , $V_{GS} = 4 \text{ V}$ <sup>Note3</sup>
Forward transfer admittance	$ y_{fs} $	25	45	—	S	$I_D = 25 \text{ A}$ , $V_{DS} = 10 \text{ V}$ <sup>Note3</sup>
Input capacitance	$C_{iss}$	—	2000	—	pF	$V_{DS} = 10 \text{ V}$ , $V_{GS} = 0$ , $f = 1 \text{ MHz}$
Output capacitance	$C_{oss}$	—	1500	—	pF	
Reverse transfer capacitance	$C_{rss}$	—	350	—	pF	
Turn-on delay time	$t_{d(on)}$	—	20	—	ns	$V_{GS} = 10 \text{ V}$ , $I_D = 25 \text{ A}$ , $R_L = 0.4 \Omega$
Rise time	$t_r$	—	330	—	ns	
Turn-off delay time	$t_{d(off)}$	—	190	—	ns	
Fall time	$t_f$	—	190	—	ns	
Body-drain diode forward voltage	$V_{DF}$	—	0.95	—	V	$I_F = 50 \text{ A}$ , $V_{GS} = 0$
Body-drain diode reverse recovery time	$t_{rr}$	—	60	—	ns	$I_F = 50 \text{ A}$ , $V_{GS} = 0$ $di_F/dt = 50 \text{ A}/\mu s$

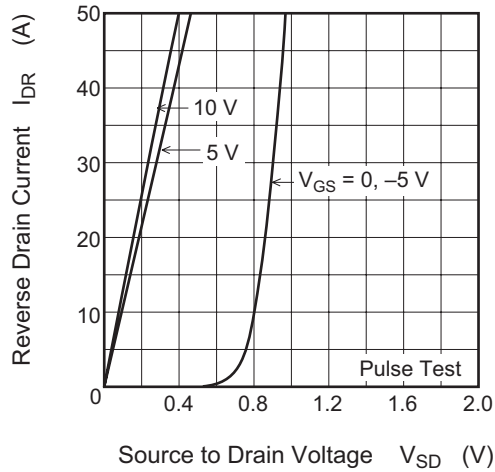
Note: 3. Pulse test

Main Characteristics

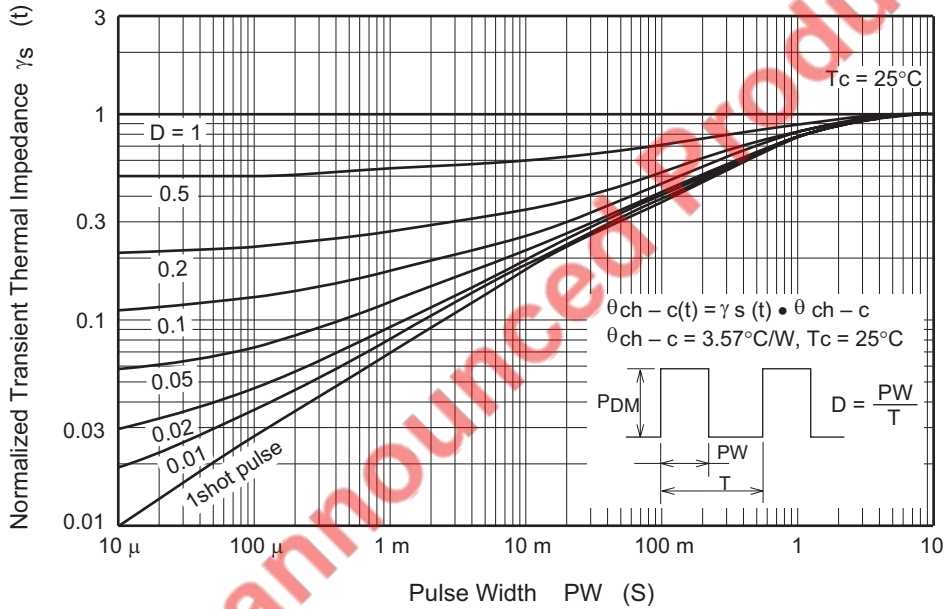




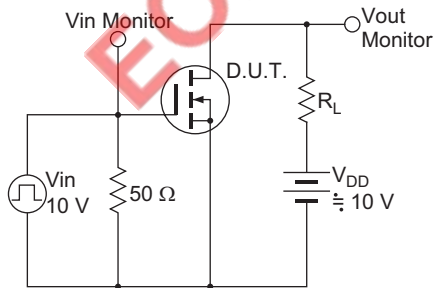
Reverse Drain Current vs. Source to Drain Voltage



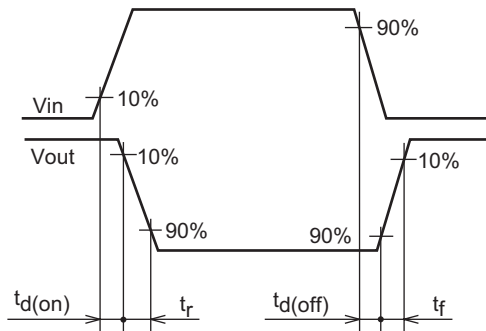
Normalized Transient Thermal Impedance vs. Pulse Width



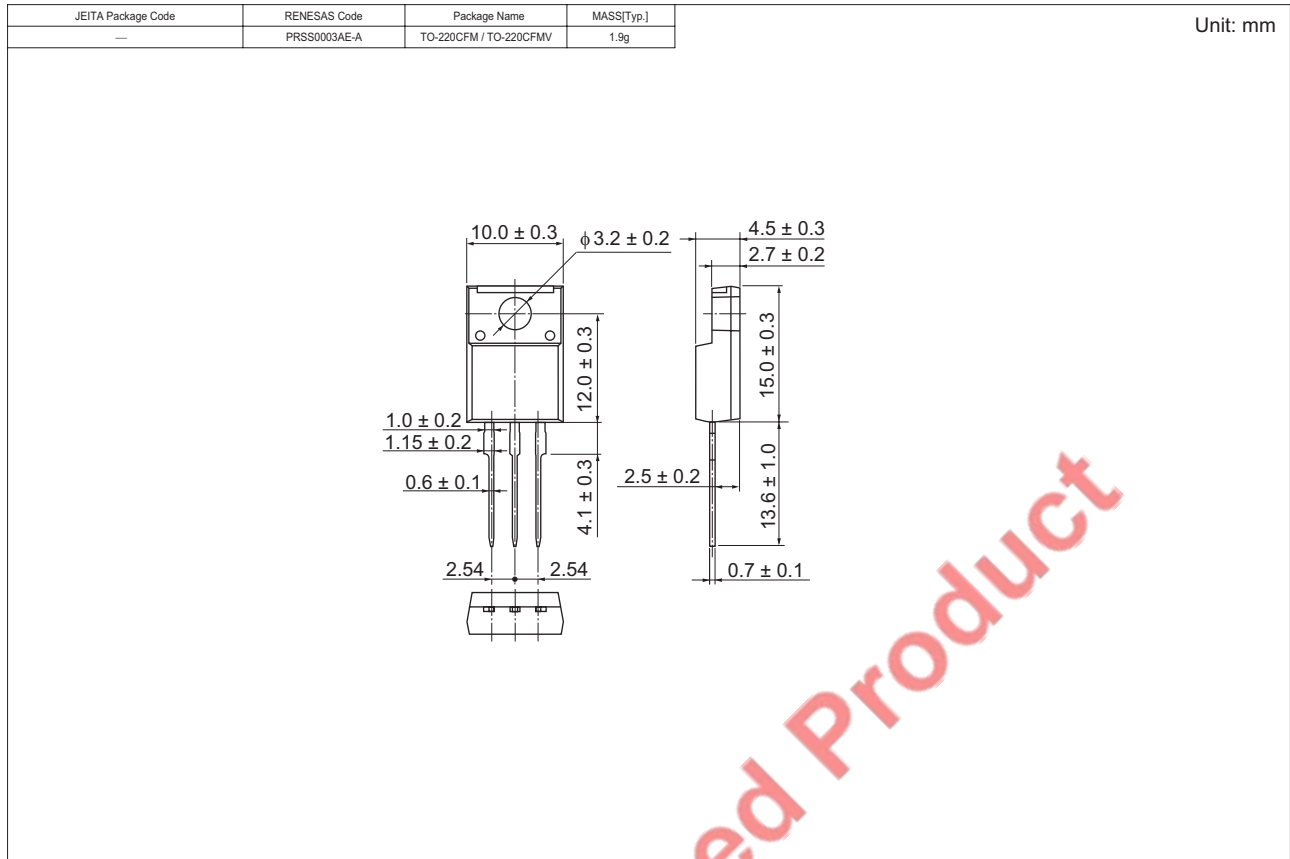
Switching Time Test Circuit



Waveform



## Package Dimensions



## Ordering Information

Part Name	Quantity	Shipping Container
2SK2956-E	600 pcs	Box (Tube)

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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