

2SK2956

Silicon N Channel MOS FET
High Speed Power Switching

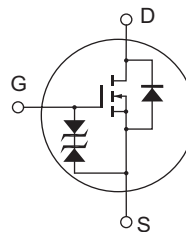
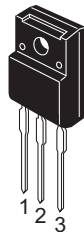
REJ03G1056-0401
(Previous: ADE-208-566B)
Rev.4.01
Apr 27, 2006

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	$I_{D(pulse)}$ ^{Note1}	200	A
Body-drain diode reverse drain current	I_{DR}	50	A
Channel dissipation	P_{ch} ^{Note2}	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 $T_c = 25^\circ C$

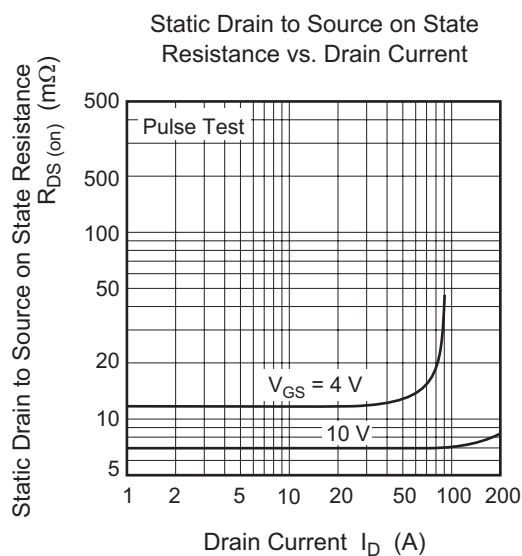
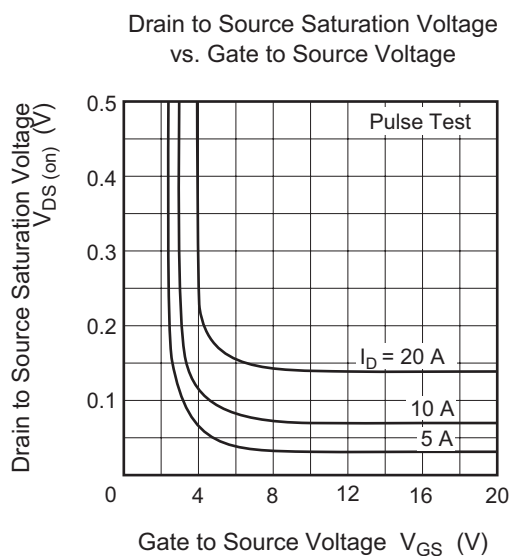
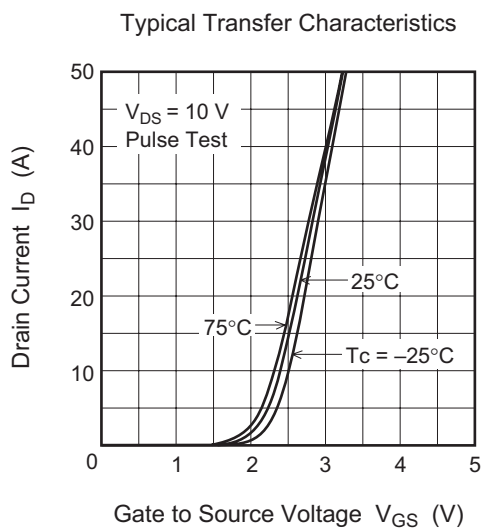
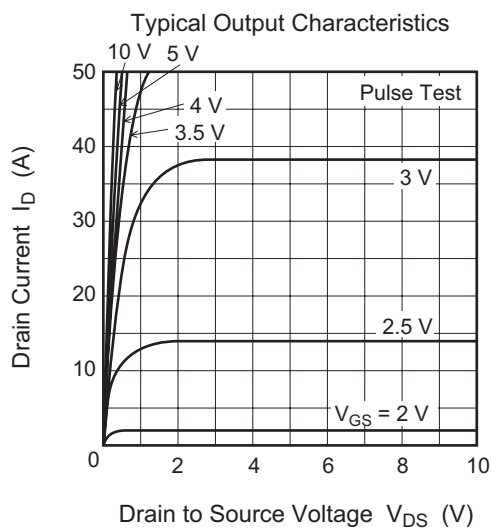
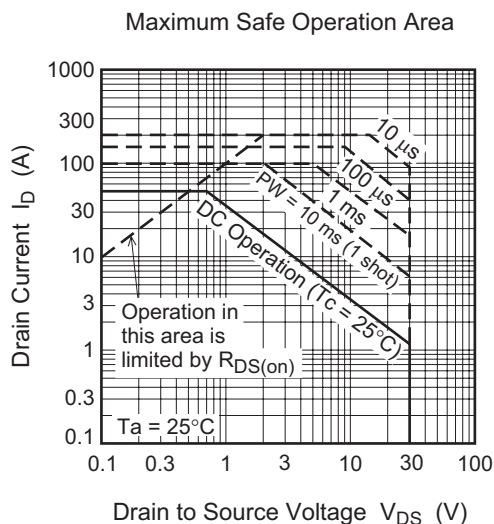
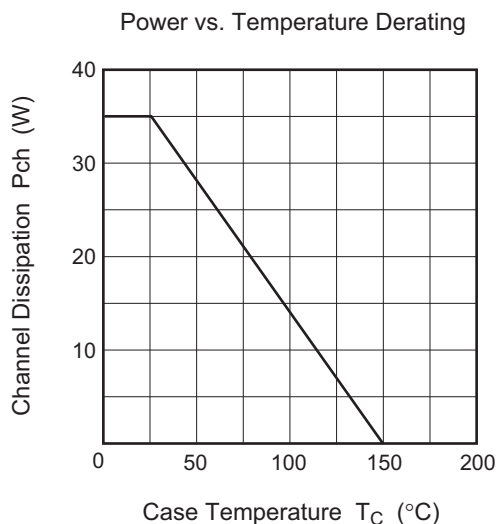
Electrical Characteristics

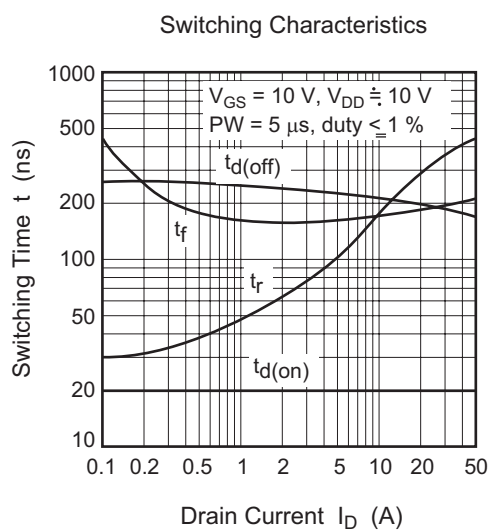
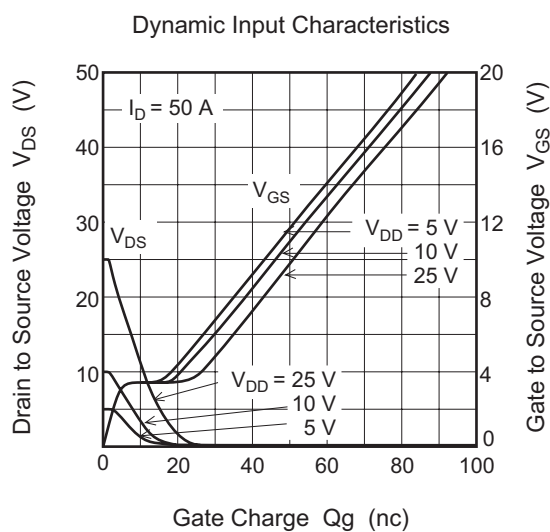
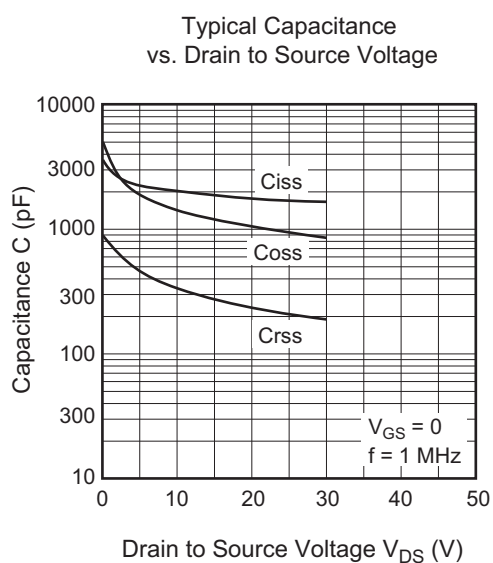
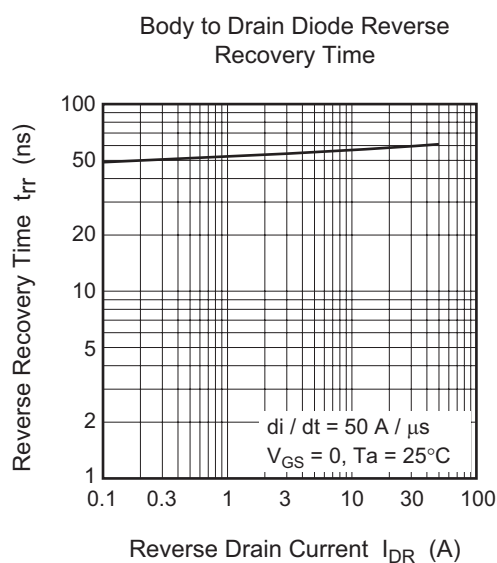
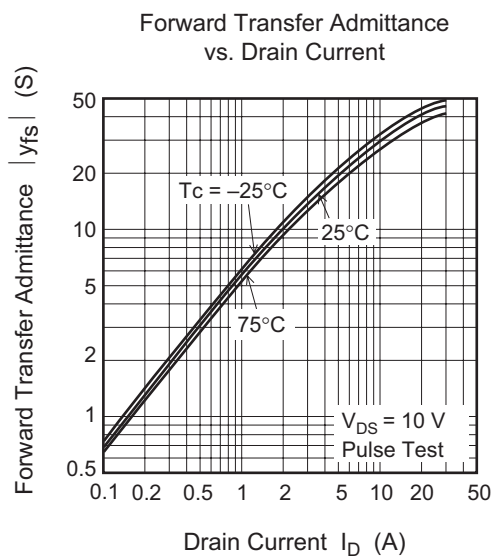
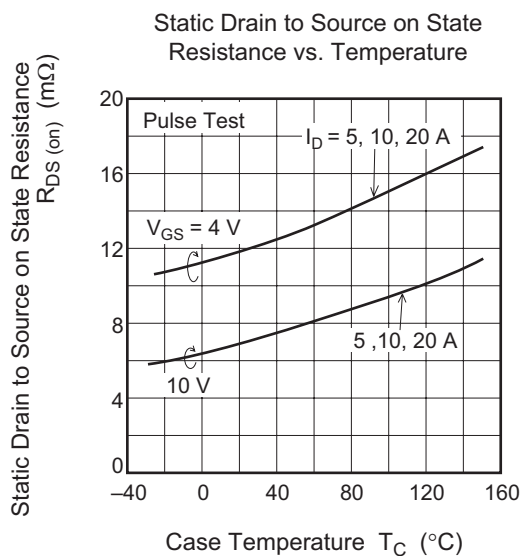
(Ta = 25°C)

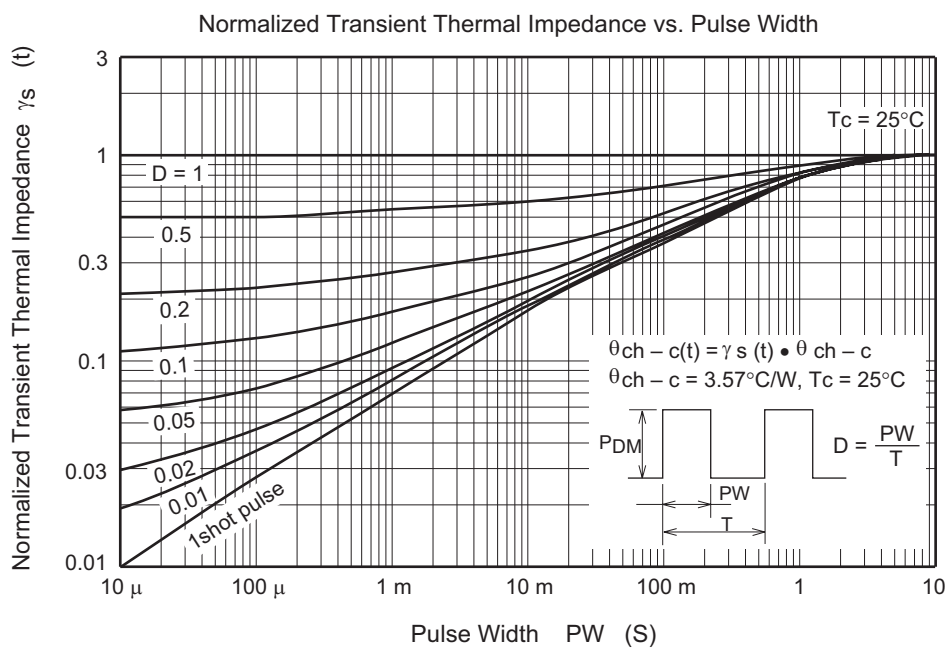
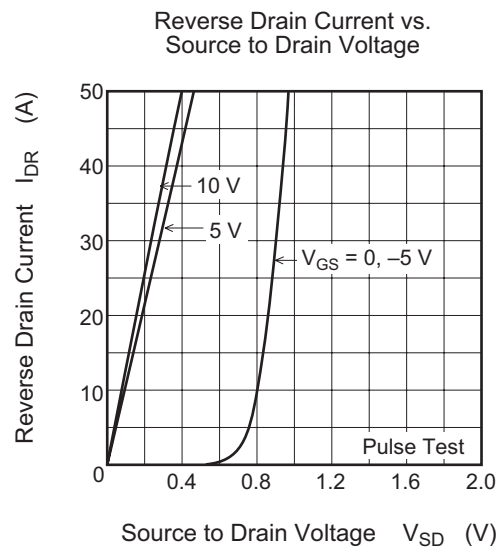
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	30	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	—	—	V	$I_G = \pm 100 \mu A$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	10	μA	$V_{DS} = 30 \text{ V}$, $V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	±10	μA	$V_{GS} = \pm 16 \text{ V}$, $V_{DS} = 0$
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	$m\Omega$	$I_D = 25 \text{ A}$, $V_{GS} = 10 \text{ V}$ ^{Note3}
	$R_{DS(on)}$	—	12	18	$m\Omega$	$I_D = 25 \text{ A}$, $V_{GS} = 4 \text{ V}$ ^{Note3}
Forward transfer admittance	$ y_{fs} $	25	45	—	S	$I_D = 25 \text{ A}$, $V_{DS} = 10 \text{ V}$ ^{Note3}
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

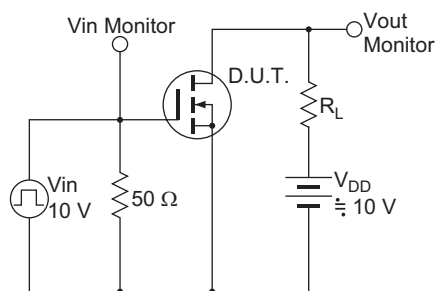
Main Characteristics



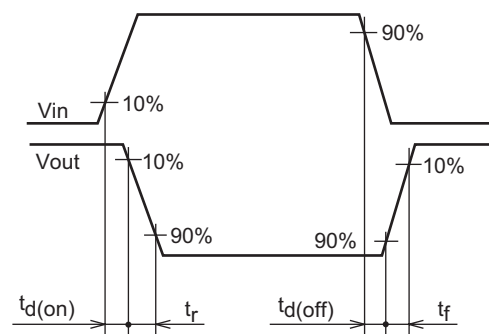




Switching Time Test Circuit



Waveform



Package Dimensions

JEITA Package Code	RENESAS Code	Package Name	MASS[Typ.]	Unit: mm
—	PRSS0003AE-A	TO-220CFM / TO-220CFMV	1.9g	

Technical drawing of the 2SK2956 TO-220CFM package showing dimensions in mm:

- Top View:**
 - Width: 10.0 ± 0.3
 - Height: 12.0 ± 0.3
 - Pin pitch: 2.54
 - Pin width: 0.6 ± 0.1
 - Pin length: 4.1 ± 0.3
 - Pin diameter: $\phi 3.2 \pm 0.2$
 - Pin spacing: 1.0 ± 0.2 and 1.15 ± 0.2
- Side View:**
 - Overall height: 15.0 ± 0.3
 - Base thickness: 0.7 ± 0.1
 - Pin length: 13.6 ± 1.0
 - Pin diameter: $\phi 3.2 \pm 0.2$
 - Pin spacing: 2.5 ± 0.2
 - Top width: 4.5 ± 0.3
 - Top thickness: 2.7 ± 0.2

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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