

2SK3233

Silicon N Channel MOS FET
High Speed Power Switching

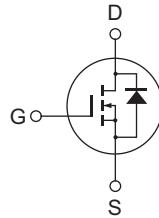
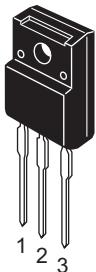
REJ03G1096-0200
(Previous: ADE-208-1369)
Rev.2.00
Sep 07, 2005

Features

- Low on-resistance: $R_{DS(on)} = 1.1 \Omega$ typ.
- Low leakage current: $I_{DSS} = 1 \mu\text{A}$ max (at $V_{DS} = 500 \text{ V}$)
- High speed switching: $t_f = 15 \text{ ns}$ typ (at $V_{GS} = 10 \text{ V}$, $V_{DD} = 250 \text{ V}$, $I_D = 2.5 \text{ A}$)
- Low gate charge: $Q_g = 15 \text{ nC}$ typ (at $V_{DD} = 400 \text{ V}$, $V_{GS} = 10 \text{ V}$, $I_D = 5 \text{ A}$)
- Avalanche ratings

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	Value	Unit
Drain to source voltage	V _{DSS}	500	V
Gate to source voltage	V _{GSS}	±30	V
Drain current	I _D	5	A
Drain peak current	I _D (pulse) ^{Note 1}	20	A
Body-drain diode reverse drain current	I _{DR}	5	A
Body-drain diode reverse drain peak current	I _{DR} (pulse) ^{Note 1}	20	A
Avalanche current	I _{AP} ^{Note 3}	5	A
Channel dissipation	P _{ch} ^{Note 2}	30	W
Channel to case thermal impedance	θ _{ch-c}	4.17	°C/W
Channel temperature	T _{ch}	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

Notes: 1. PW ≤ 10 μs, duty cycle ≤ 1%

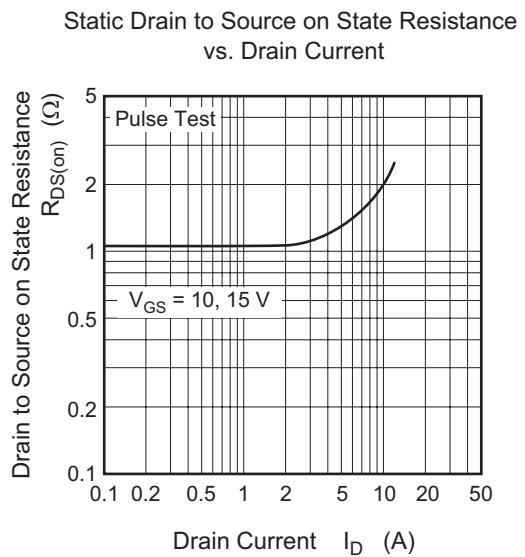
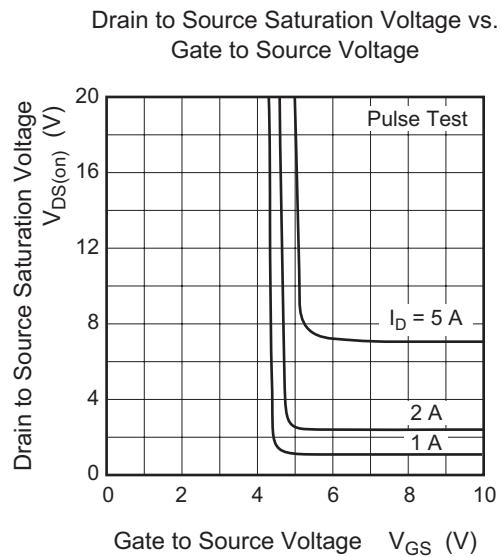
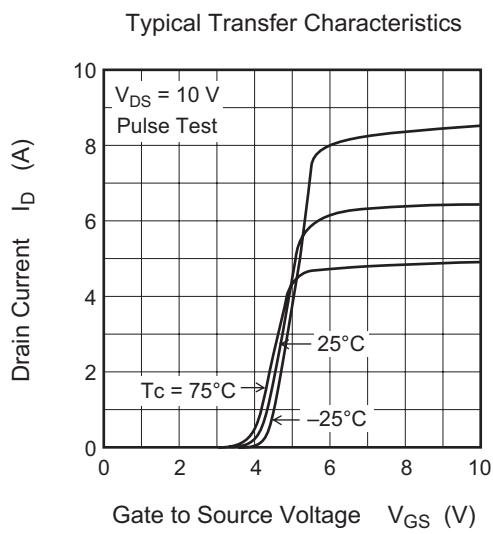
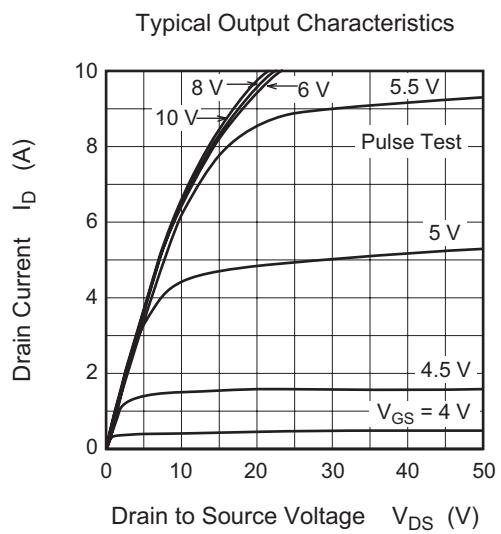
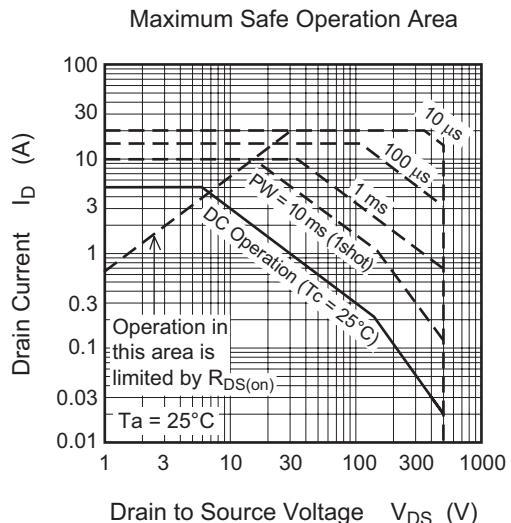
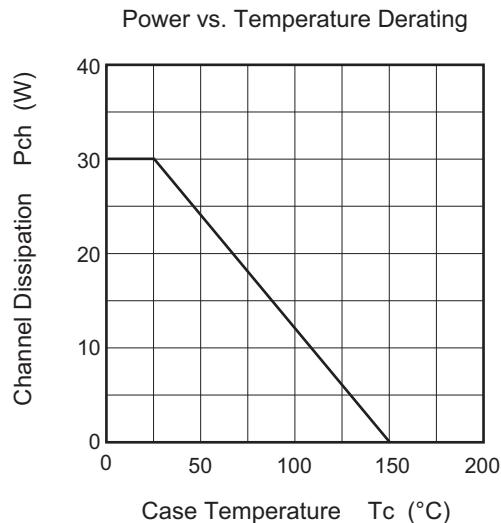
2. Value at T_c = 25°C3. T_{ch} ≤ 150°C**Electrical Characteristics**

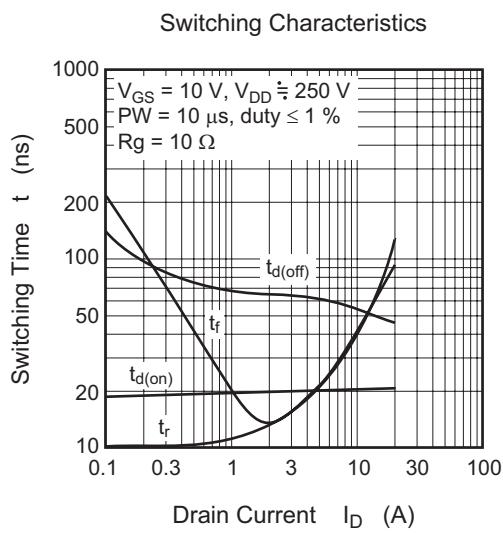
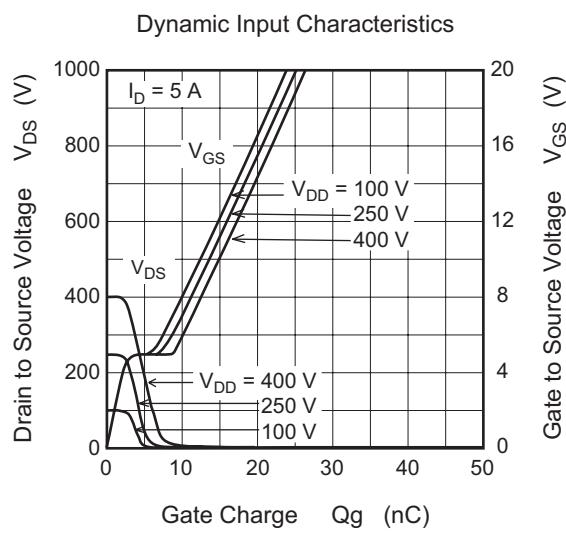
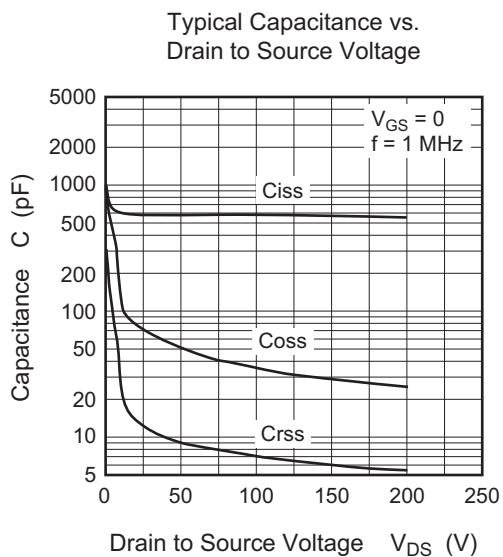
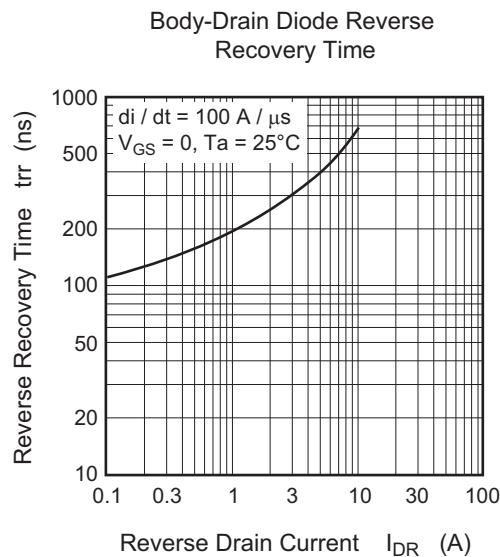
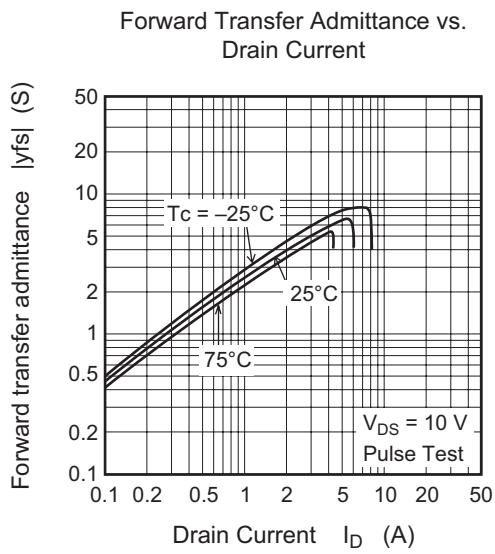
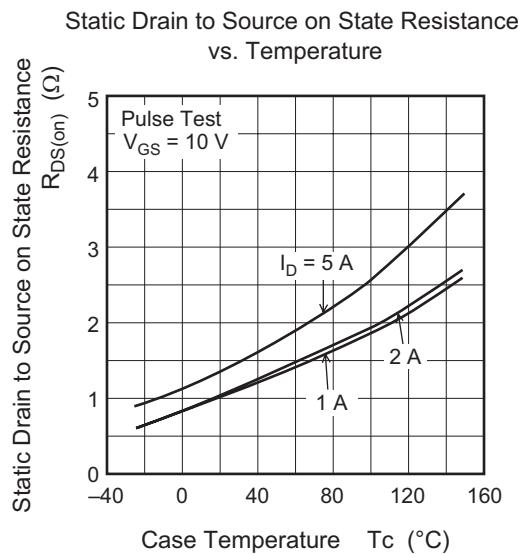
(Ta = 25°C)

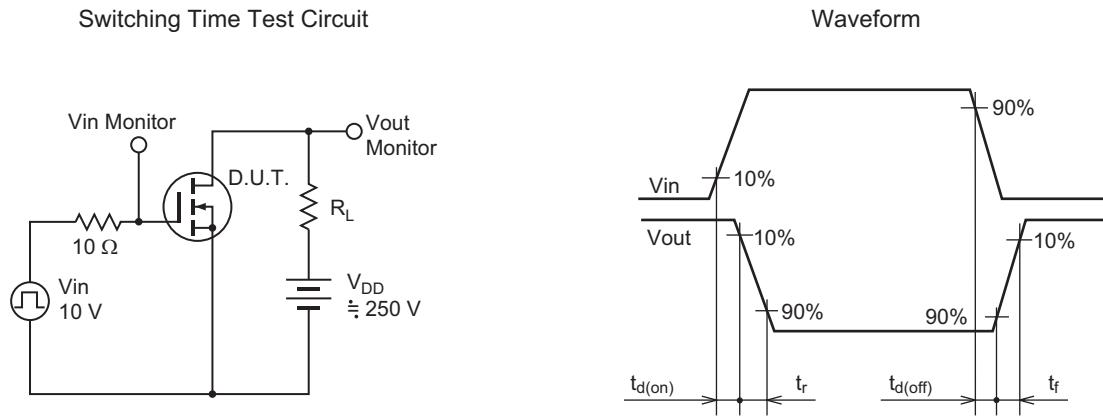
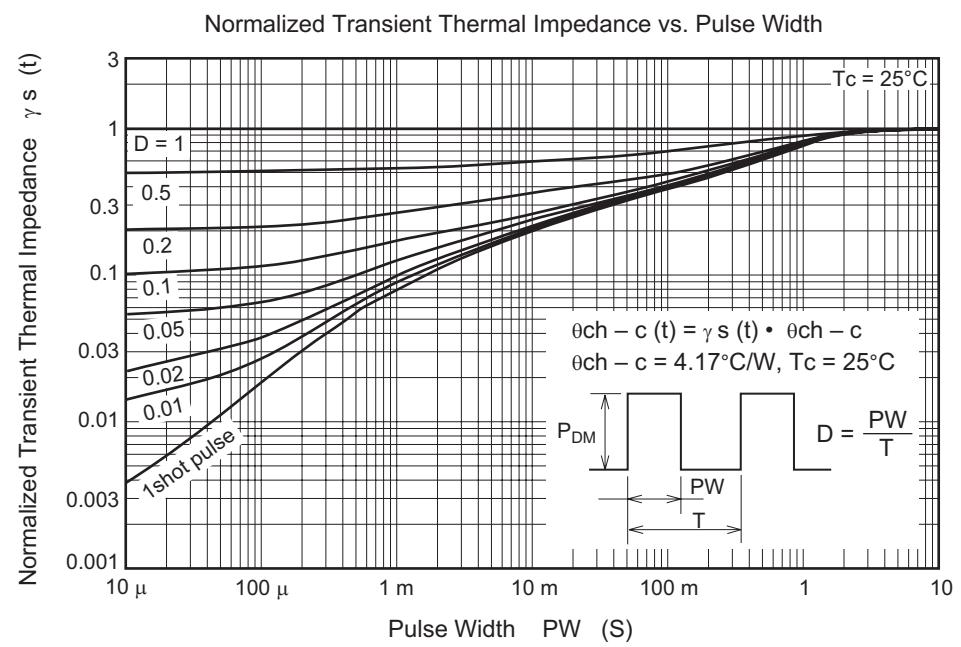
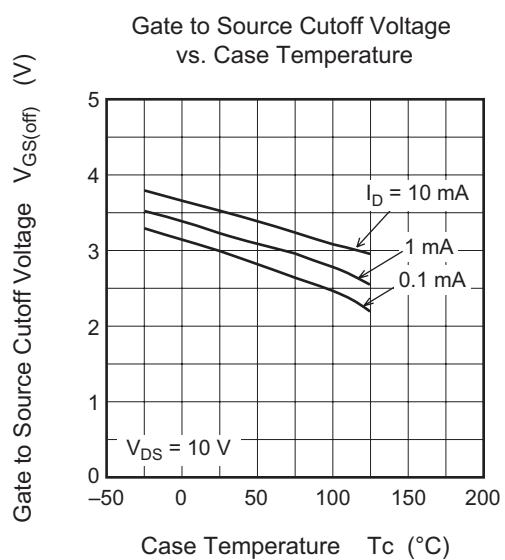
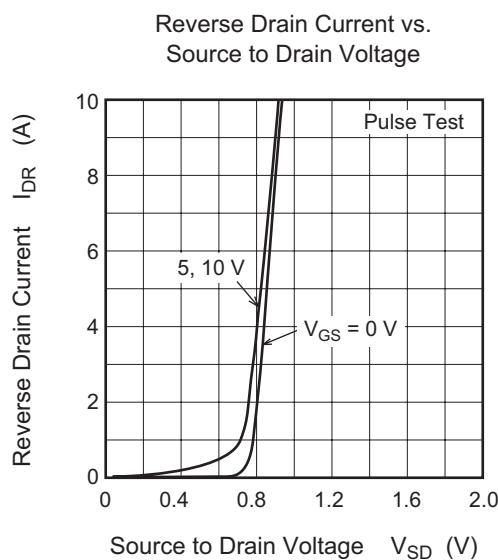
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V _{(BR) DSS}	500	—	—	V	I _D = 10 mA, V _{GS} = 0
Gate to source leak current	I _{GSS}	—	—	±0.1	μA	V _{GS} = ±30 V, V _{DS} = 0
Zero gate voltage drain current	I _{DSS}	—	—	1	μA	V _{DS} = 500 V, V _{GS} = 0
Gate to source cutoff voltage	V _{GS} (off)	3.0	—	4.0	V	I _D = 1 mA, V _{DS} = 10 V
Static drain to source on state resistance	R _{DSS} (on)	—	1.1	1.5	Ω	I _D = 2.5 A, V _{GS} = 10 V ^{Note 4}
Forward transfer admittance	y _{fs}	3.0	4.5	—	S	I _D = 2.5 A, V _{DS} = 10 V ^{Note 4}
Input capacitance	C _{iss}	—	580	—	pF	V _{DS} = 25 V
Output capacitance	C _{oss}	—	70	—	pF	V _{GS} = 0
Reverse transfer capacitance	C _{rss}	—	13	—	pF	f = 1 MHz
Turn-on delay time	t _d (on)	—	20	—	ns	I _D = 2.5 A
Rise time	t _r	—	15	—	ns	V _{GS} = 10 V
Turn-off delay time	t _d (off)	—	65	—	ns	R _L = 100 Ω
Fall time	t _f	—	15	—	ns	R _g = 10 Ω
Total gate charge	Q _g	—	15	—	nC	V _{DD} = 400 V
Gate to source charge	Q _{gs}	—	3	—	nC	V _{GS} = 10 V
Gate to drain charge	Q _{gd}	—	8	—	nC	I _D = 5 A
Body-drain diode forward voltage	V _{DF}	—	0.85	1.3	V	I _F = 5 A, V _{GS} = 0
Body-drain diode reverse recovery time	t _{rr}	—	400	—	ns	I _F = 5 A, V _{GS} = 0
Body-drain diode reverse recovery charge	Q _{rr}	—	1.5	—	μC	di _F /dt = 100 A/μs

Note: 4. Pulse test

Main Characteristics



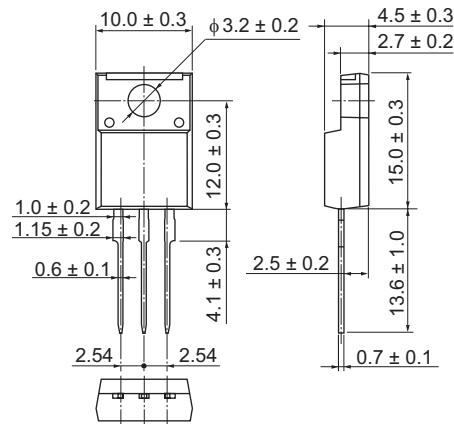




Package Dimensions

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

Unit: mm



Ordering Information

Part Name	Quantity	Shipping Container
2SK3233-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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