

2SK1402, 2SK1402A

Silicon N Channel MOS FET

REJ03G0942-0200
(Previous: ADE-208-1282)
Rev.2.00
Sep 07, 2005

Application

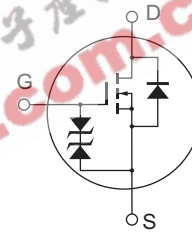
High speed power switching

Features

- Low on-resistance
- High speed switching
- Low drive current
- No secondary breakdown
- Suitable for switching regulator and DC-DC converter

Outline

RENESAS Package code: PRSS0004AC-A
(Package name: TO-220AB)



1. Gate
2. Drain
(Flange)
3. Source

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	2SK1402	600	V
	2SK1402A	650	
Gate to source voltage	V _{GSS}	±30	V
Drain current	I _D	4	A
Drain peak current	I _{D(pulse)} *1	16	A
Body to drain diode reverse drain current	I _{DR}	4	A
Channel dissipation	P _{ch} *2	50	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°C

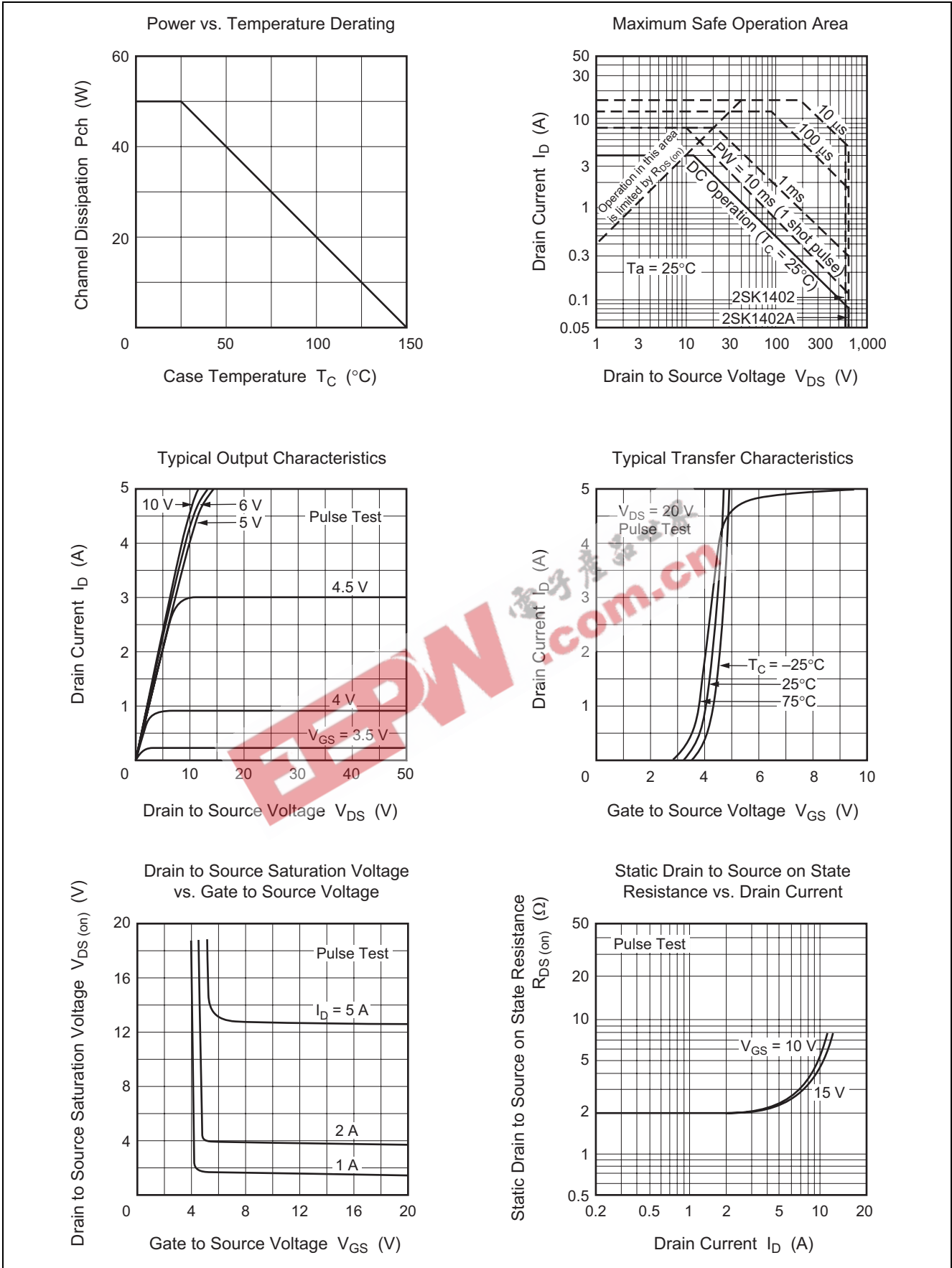
Electrical Characteristics

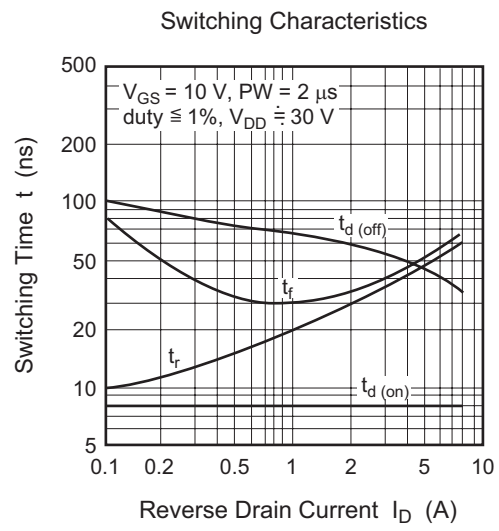
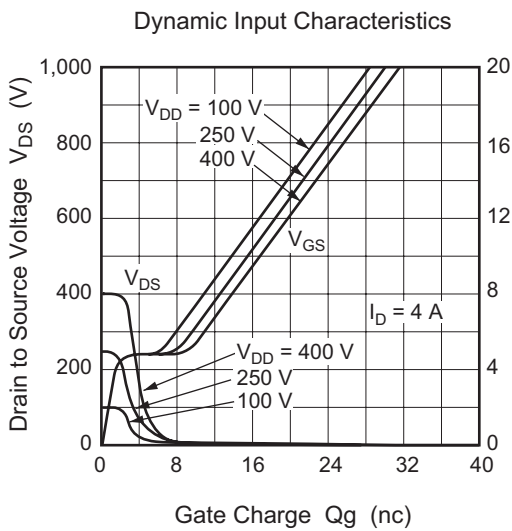
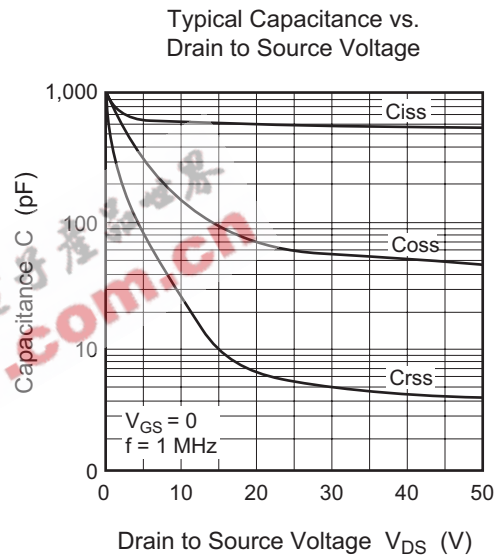
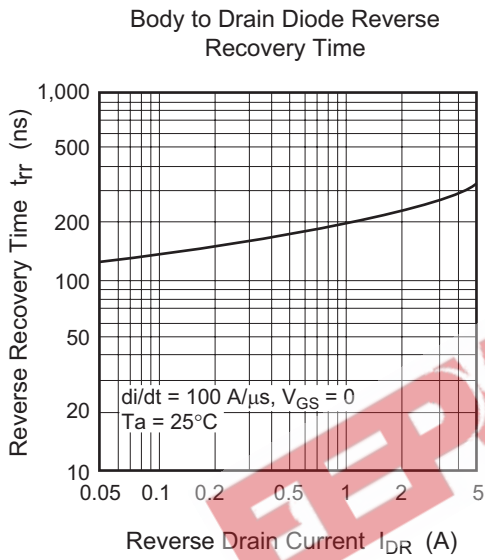
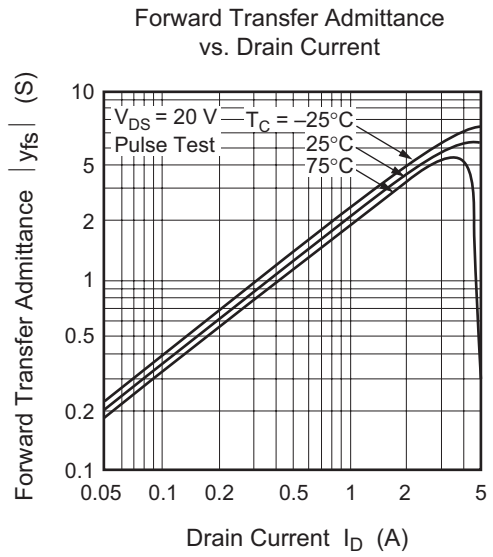
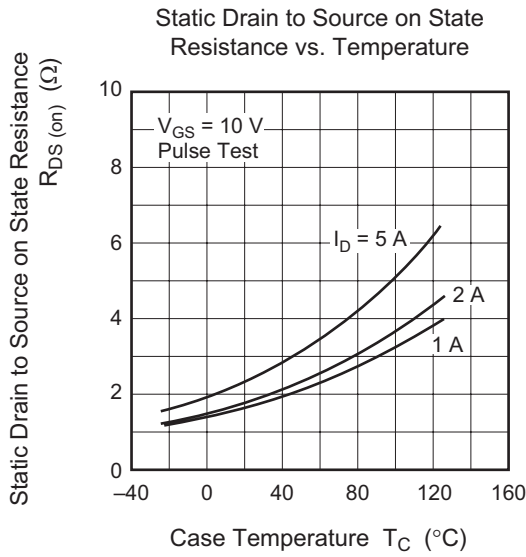
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK1402	600	—	—	V	I _D = 10 mA, V _{GS} = 0
	2SK1402A	650	—	—		
Gate to source breakdown voltage	V _{(BR)GSS}	±30	—	—	V	I _G = ±100 μA, V _{DS} = 0
Gate to source leak current	I _{GSS}	—	—	±10	μA	V _{GS} = ±25 V, V _{DS} = 0
Zero gate voltage drain current	2SK1402	—	—	250	μA	V _{DS} = 500 V, V _{GS} = 0
	2SK1402A	—	—	—		V _{DS} = 550 V, V _{GS} = 0
Gate to source cutoff voltage	V _{GS(off)}	2.0	—	3.0	V	I _D = 1 mA, V _{DS} = 10 V
Static drain to source on state resistance	2SK1402	—	1.8	2.4	Ω	I _D = 2 A, V _{GS} = 10 V *3
	2SK1402A	—	2.0	2.6		
Forward transfer admittance	y _{fs}	2.2	3.5	—	S	I _D = 2 A, V _{DS} = 10 V *3
Input capacitance	C _{iss}	—	600	—	pF	V _{DS} = 10 V, V _{GS} = 0, f = 1 MHz
Output capacitance	C _{oss}	—	140	—	pF	
Reverse transfer capacitance	C _{rss}	—	25	—	pF	
Turn-on delay time	t _{d(on)}	—	8	—	ns	
Rise time	t _r	—	30	—	ns	I _D = 2 A, V _{GS} = 10 V, R _L = 15 Ω
Turn-off delay time	t _{d(off)}	—	60	—	ns	
Fall time	t _f	—	35	—	ns	
Body to drain diode forward voltage	V _{DF}	—	0.9	—	V	I _F = 4 A, V _{GS} = 0
Body to drain diode reverse recovery time	t _{rr}	—	300	—	ns	I _F = 4 A, V _{GS} = 0, di _F /dt = 100 A/μs

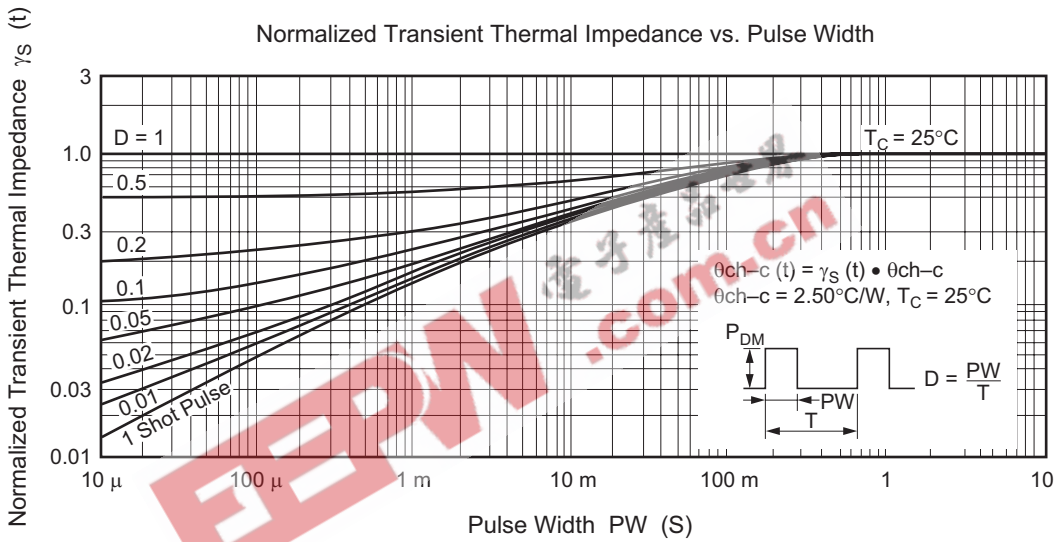
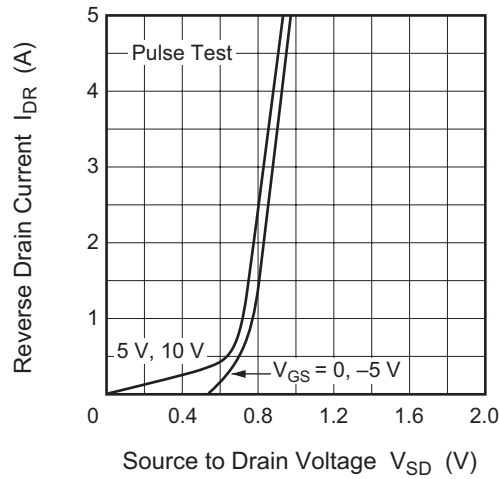
Note: 3. Pulse test

Main Characteristics

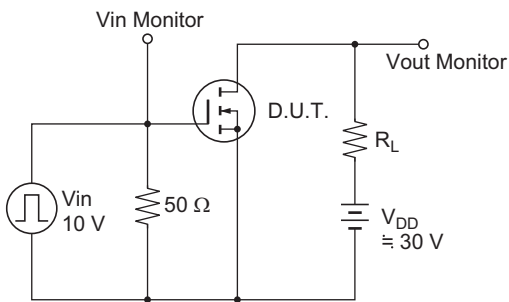




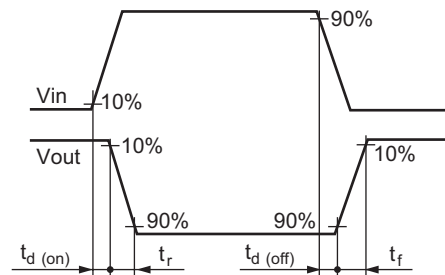
Reverse Drain Current vs. Source to Drain Voltage



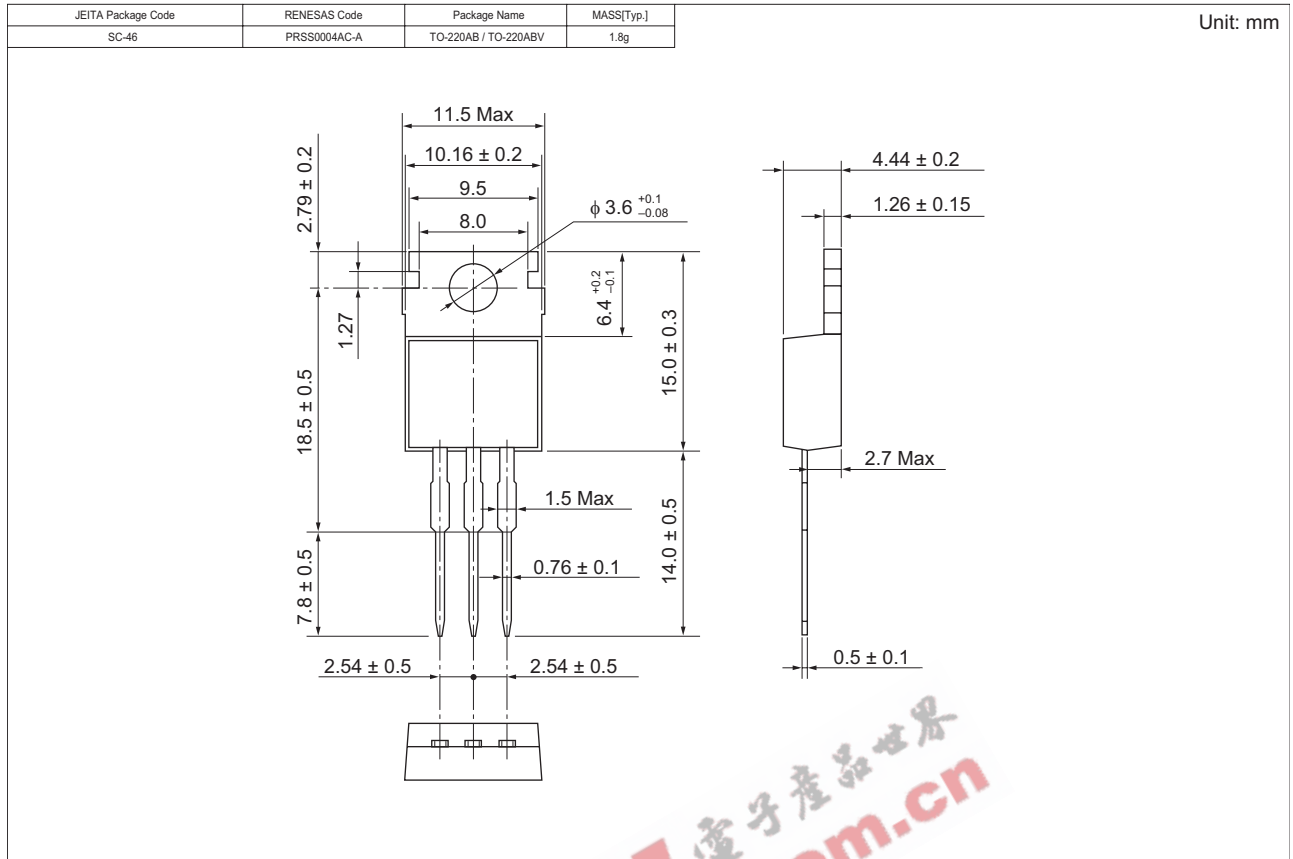
Switching Time Test Circuit



Waveforms



Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
2SK1402-E	500 pcs	Box (Sack)
2SK1402A-E	500 pcs	Box (Sack)

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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