

# 2SK1400, 2SK1400A

# Silicon N Channel MOS FET

REJ03G0940-0200

(Previous: ADE-208-1280)

Rev.2.00 Sep 07, 2005

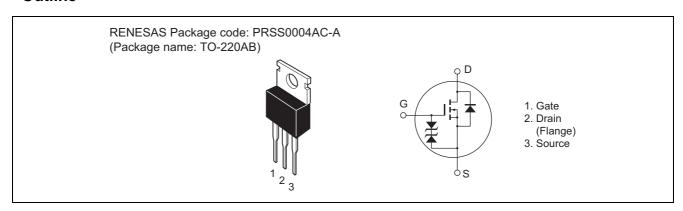
# **Application**

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**



# **Absolute Maximum Ratings**

 $(Ta = 25^{\circ}C)$ 

Item		Symbol	Ratings	Unit	
Drain to source voltage	ain to source voltage 2SK1400		300	V	
	2SK1400A		350		
Gate to source voltage		$V_{GSS}$	±30	V	
Drain current		I <sub>D</sub>	7	А	
Drain peak current		I <sub>D(pulse)</sub> *1	28	А	
Body to drain diode reverse drain current		I <sub>DR</sub>	7	А	
Channel dissipation		Pch* <sup>2</sup>	50	W	
Channel temperature		Tch	150	°C	
Storage temperature		Tstg	-55 to +150	°C	

Notes: 1. PW  $\leq$  10  $\mu$ s, duty cycle  $\leq$  1%

2. Value at  $T_C = 25$ °C

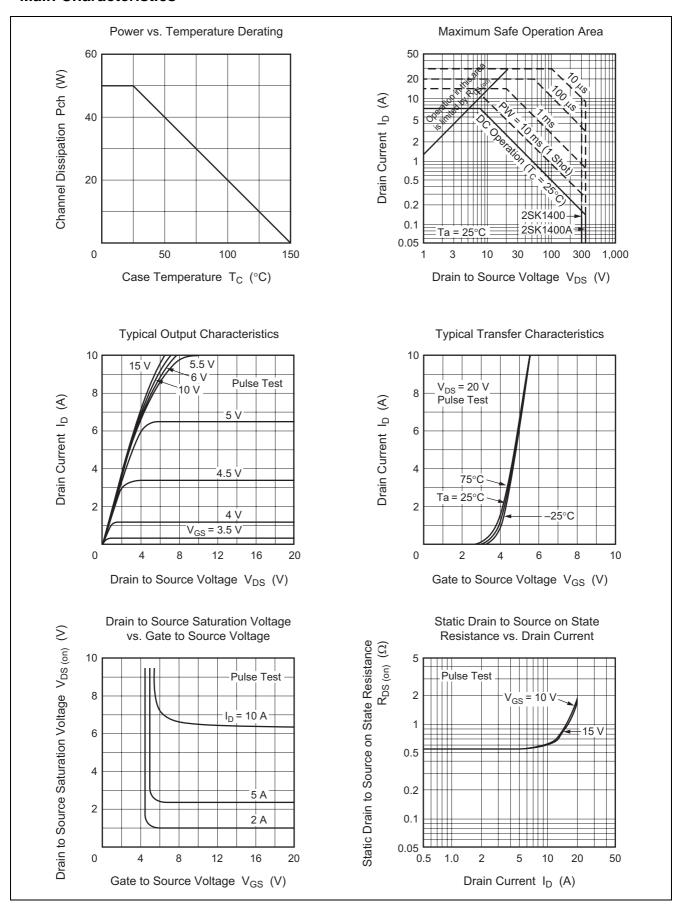
## **Electrical Characteristics**

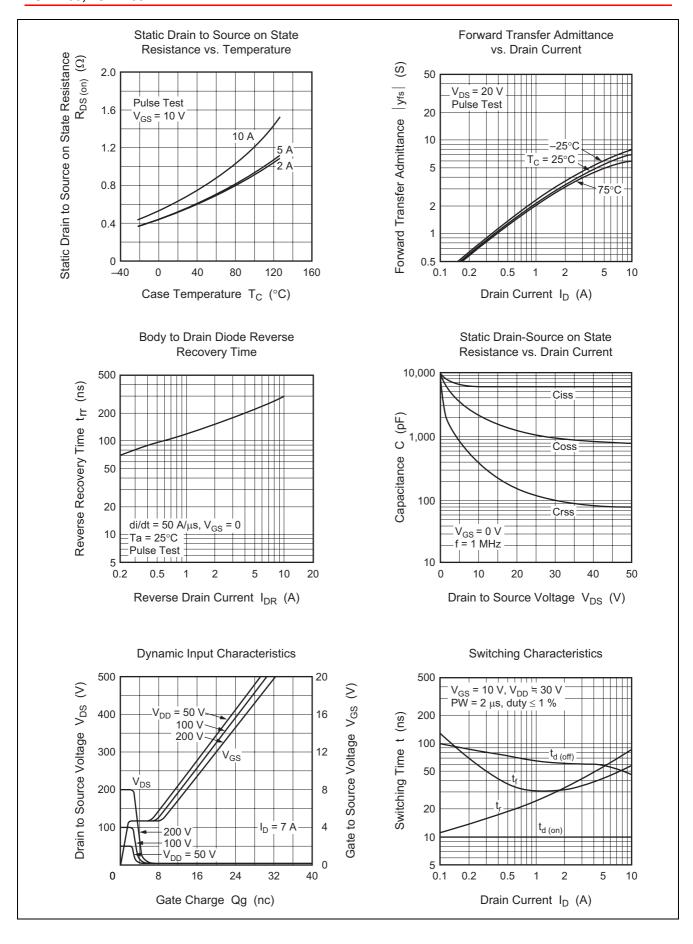
 $(Ta = 25^{\circ}C)$ 

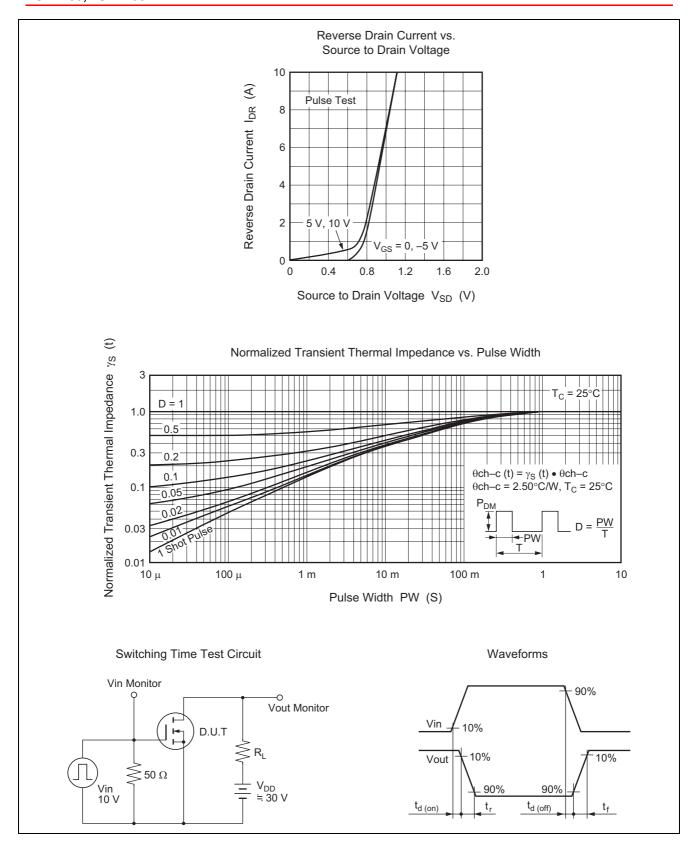
Item		Symbol	Min	Тур	Max	Unit	Test conditions
Drain to source	2SK1400	$V_{(BR)DSS}$	300	_	1	V	$I_D = 10 \text{ mA}, V_{GS} = 0$
breakdown voltage	2SK1400A		350	_	_		
Gate to source breakdow	n voltage	$V_{(BR)GSS}$	±30	_	1	V	$I_G = \pm 100 \ \mu A, \ V_{DS} = 0$
Gate to source leak current		$I_{GSS}$	_	_	±10	μΑ	$V_{GS} = \pm 25 \text{ V}, V_{DS} = 0$
Zero gate voltage drain	2SK1400	I <sub>DSS</sub>	_	_	250	μΑ	$V_{DS} = 240 \text{ V}, V_{GS} = 0$
current	2SK1400A						$V_{DS} = 280 \text{ V}, V_{GS} = 0$
Gate to source cutoff voltage		$V_{GS(off)}$	2.0	_	3.0	V	$I_D = 1 \text{ mA}, V_{DS} = 10 \text{ V}$
Static drain to source on	2SK1400	R <sub>DS(on)</sub>	_	0.50	0.70	Ω	$I_D = 4 \text{ A}, V_{GS} = 10 \text{ V}^{*3}$
state resistance	2SK1400A		_	0.60	0.80		
Forward transfer admittance		y <sub>fs</sub>	3.0	5.0	_	S	$I_D = 4 \text{ A}, V_{DS} = 10 \text{ V}^{*3}$
Input capacitance		Ciss	_	635	_	pF	$V_{DS} = 10 \text{ V}, V_{GS} = 0,$
Output capacitance		Coss	_	230	_	pF	f = 1 MHz
Reverse transfer capacitance		Crss	_	40	_	pF	
Turn-on delay time		t <sub>d(on)</sub>	_	10	_	ns	$I_D = 4 \text{ A}, V_{GS} = 10 \text{ V},$
Rise time		t <sub>r</sub>	_	50	_	ns	$R_L = 7.5 \Omega$
Turn-off delay time		$t_{d(off)}$	_	60	_	ns	
Fall time		t <sub>f</sub>	_	40	_	ns	
Body to drain diode forward voltage		$V_{DF}$	_	1.0	_	V	$I_F = 7 \text{ A}, V_{GS} = 0$
Body to drain diode reverse recovery		t <sub>rr</sub>	_	240	_	ns	$I_F = 7 A, V_{GS} = 0,$
time							$di_F/dt = 100 A/\mu s$

Note: 3. Pulse test

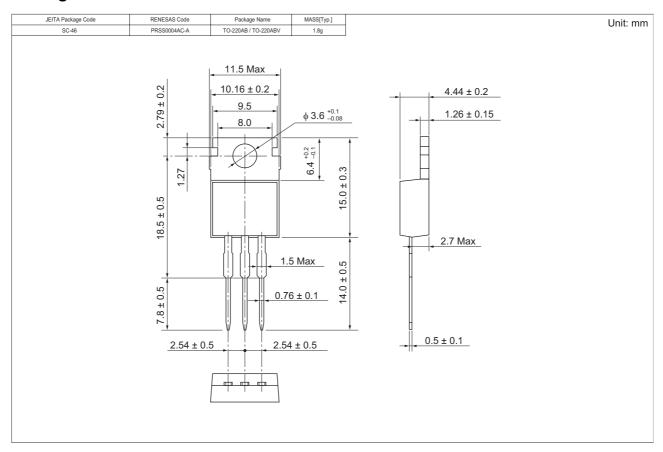
### **Main Characteristics**







# **Package Dimensions**



# **Ordering Information**

Part Name	Quantity	Shipping Container		
2SK1400-E	500 pcs	Box (Sack)		
2SK1400A-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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