

# 2SK2933

# Silicon N Channel MOS FET High Speed Power Switching

REJ03G1047-0400

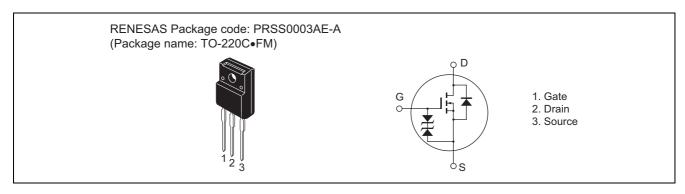
(Previous: ADE-208-556B)

Rev.4.00 Sep 07, 2005

### **Features**

- Low on-resistance  $R_{DS(on)} = 0.040 \; \Omega \; typ. \label{eq:DS_DS}$
- 4 V gate drive devices.
- High speed switching

# **Outline**



# **Absolute Maximum Ratings**

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

Item	Symbol	Ratings	Unit
Drain to source voltage	V <sub>DSS</sub>	60	V
Gate to source voltage	$V_{GSS}$	±20	V
Drain current	I <sub>D</sub>	15	A
Drain peak current	I <sub>D(pulse)</sub> Note1	60	Α
Body-drain diode reverse drain current	I <sub>DR</sub>	15	А
Avalanche current	I <sub>AP</sub> Note3	15	А
Avalanche energy	E <sub>AR</sub> Note3	19	mJ
Channel dissipation	Pch Note2	25	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 Ta = 25°C

3. Value at Tch = 25°C, Rg  $\geq$  50  $\Omega$ 

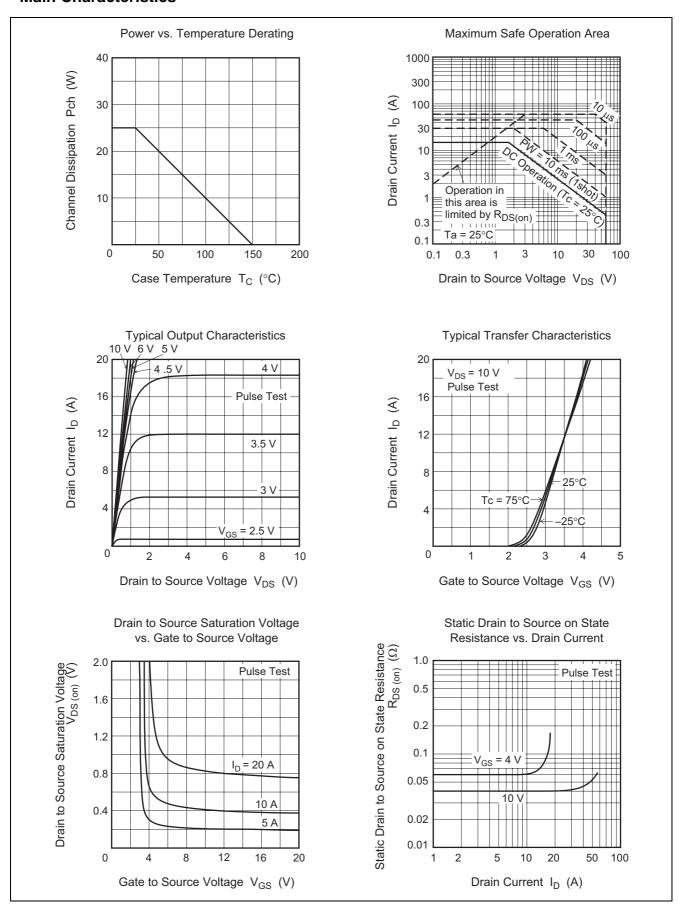
# **Electrical Characteristics**

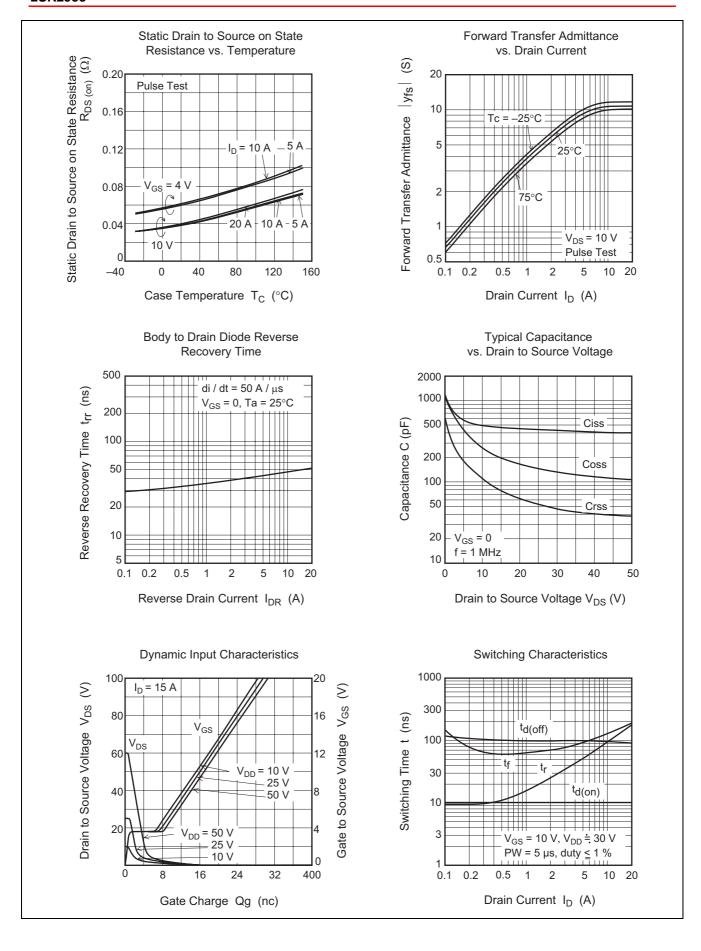
 $(Ta = 25^{\circ}C)$ 

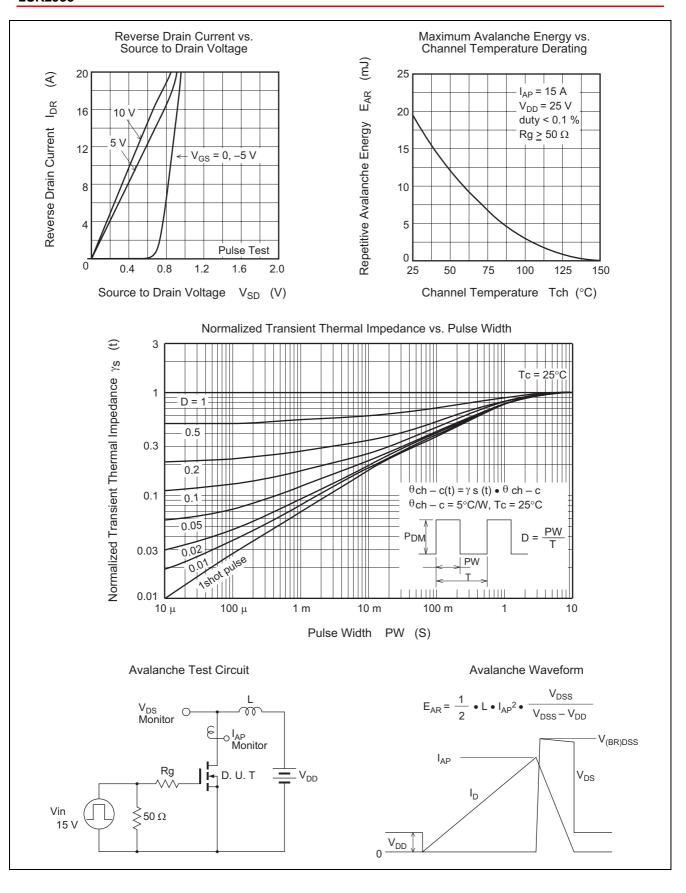
Item	Symbol	Min	Тур	Max	Unit	Test Conditions	
Drain to source breakdown voltage	V <sub>(BR)DSS</sub>	60	_	_	V	$I_D = 10 \text{ mA}, V_{GS} = 0$	
Gate to source breakdown voltage	V <sub>(BR)GSS</sub>	±20	_	_	V	$I_G = \pm 100 \ \mu A, \ V_{DS} = 0$	
Zero gate voltage drain current	I <sub>DSS</sub>	_	_	10	μΑ	$V_{DS} = 60 \text{ V}, V_{GS} = 0$	
Gate to source leak current	I <sub>GSS</sub>	_	_	±10	μΑ	$V_{GS} = \pm 16 \text{ V}, V_{DS} = 0$	
Gate to source cutoff voltage	V <sub>GS(off)</sub>	1.5	_	2.5	V	$I_D = 1 \text{ mA}, V_{DS} = 10 \text{ V}$	
Static drain to source on state	R <sub>DS(on)</sub>	_	0.040	0.052	Ω	$I_D = 8 \text{ A}, V_{GS} = 10 \text{ V}^{\text{Note4}}$	
resistance	R <sub>DS(on)</sub>	_	0.060	0.105	Ω	$I_D = 8 \text{ A}, V_{GS} = 4 \text{ V}^{\text{Note4}}$	
Forward transfer admittance	y <sub>fs</sub>	7	11	_	S	$I_D = 8 \text{ A}, V_{DS} = 10 \text{ V}^{\text{Note4}}$	
Input capacitance	Ciss	_	500	_	pF	$V_{DS} = 10 \text{ V}, V_{GS} = 0,$ f = 1 MHz	
Output capacitance	Coss	_	260	_	pF		
Reverse transfer capacitance	Crss	_	110	_	pF		
Turn-on delay time	t <sub>d(on)</sub>	_	10	_	ns	$V_{GS} = 10 \text{ V}, \text{ I}_D = 8 \text{ A},$ $R_L = 3.75 \Omega$	
Rise time	t <sub>r</sub>	_	80	_	ns		
Turn-off delay time	t <sub>d(off)</sub>	_	100	_	ns		
Fall time	t <sub>f</sub>	_	110	_	ns	]	
Body-drain diode forward voltage	$V_{DF}$	_	0.9	_	V	I <sub>F</sub> = 15 A, V <sub>GS</sub> = 0	
Body-drain diode reverse	t <sub>rr</sub>	_	50	_	ns	I <sub>F</sub> = 15 A, V <sub>GS</sub> = 0	
recovery time						di <sub>F</sub> / dt =50 A/ μs	

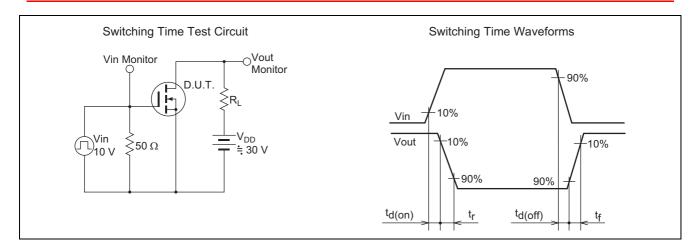
Note: 4. Pulse test

# **Main Characteristics**

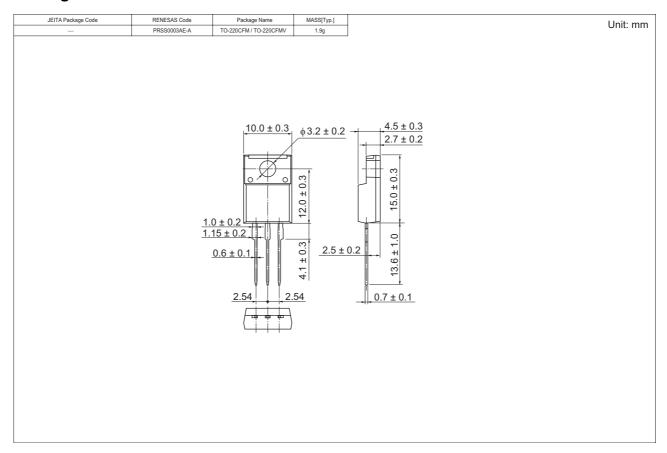








# **Package Dimensions**



# **Ordering Information**

Part Name	Quantity	Shipping Container
2SK2933-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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