

# H5N3011P

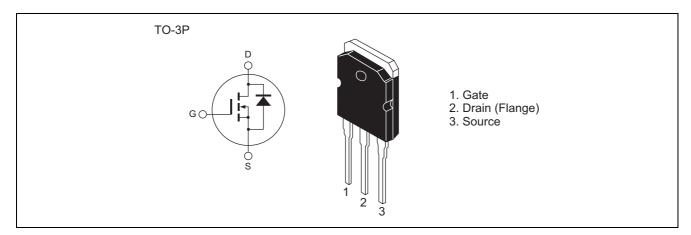
# Silicon N Channel MOS FET High Speed Power Switching

REJ03G0385-0200 Rev.2.00 Aug.05.2004

#### **Features**

- Low on-resistance
- Low leakage current
- High speed switching

#### **Outline**



### **Absolute Maximum Ratings**

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

Item	Item Symbol Ratings		Unit	
Drain to Source voltage	V <sub>DSS</sub>	300	V	
Gate to Source voltage	V <sub>GSS</sub>	±30	V	
Drain current	I <sub>D</sub>	88	A	
Drain peak current	I <sub>D (pulse)</sub> Note1	176	Α	
Body-Drain diode reverse Drain current	I <sub>DR</sub>	88	Α	
Body-Drain diode reverse Drain peak current	I <sub>DR (pulse)</sub> Note1	176	Α	
Avalanche current	I <sub>AP</sub> Note3	30	Α	
Avalanche energy	E <sub>AR</sub> Note3	54	mJ	
Channel dissipation	Pch Note2	150	W	
Channel to case thermal impedance	θch-c	0.833	°C/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 Tc = 25°C

3. STch =  $25^{\circ}$ C, Tch  $\leq 150^{\circ}$ C

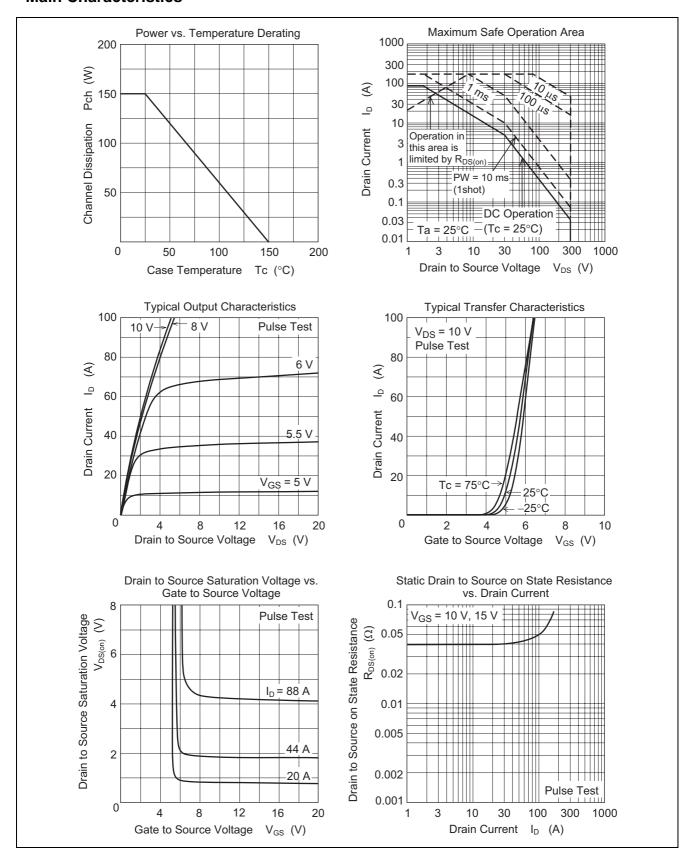
# **Electrical Characteristics**

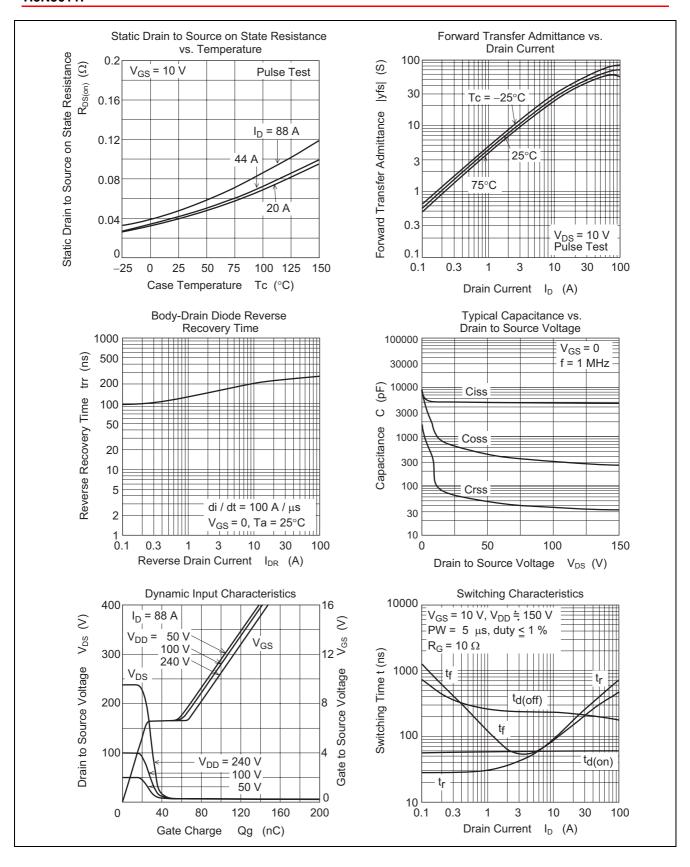
 $(Ta = 25^{\circ}C)$ 

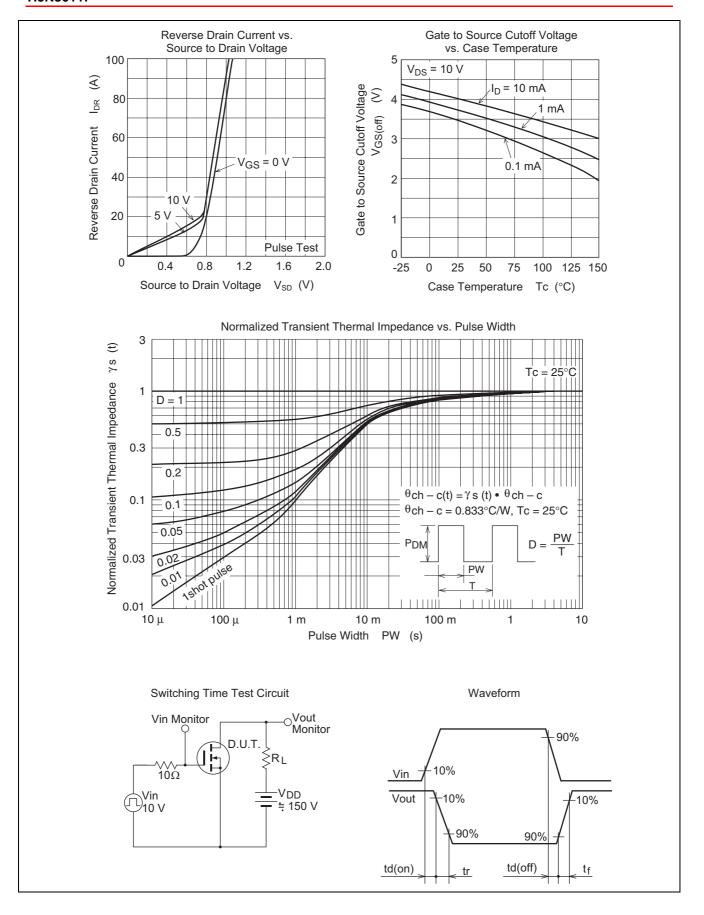
Item	Symbol	Min	Тур	Max	Unit	Test conditions	
Drain to Source breakdown voltage	$V_{(BR)DSS}$	300	_		V	$I_D = 10 \text{ mA}, V_{GS} = 0$	
Zero Gate voltage Drain current	I <sub>DSS</sub>	_	_	1	μΑ	$V_{DS} = 300 \text{ V}, V_{GS} = 0$	
Gate to Source leak current	I <sub>GSS</sub>	_	_	±0.1	μΑ	$V_{GS} = \pm 30 \text{ V}, V_{DS} = 0$	
Gate to Source cutoff voltage	$V_{GS(off)}$	3.0	_	4.5	V	$V_{DS} = 10 \text{ V}, I_{D} = 1 \text{ mA}$	
Forward transfer admittance	yfs	33	56	_	S	$I_D = 44 \text{ A}, V_{DS} = 10 \text{ V}^{\text{Note4}}$	
Static Drain to Source on state	R <sub>DS(on)</sub>	_	0.042	0.048	Ω	$I_D = 44 \text{ A}, V_{GS} = 10 \text{ V}^{\text{Note4}}$	
resistance							
Input capacitance	Ciss		5000		pF	V <sub>DS</sub> = 25 V	
Output capacitance	Coss	1	640		рF	$V_{GS} = 0$	
Reverse transfer capacitance	Crss	_	65	_	pF	f = 1 MHz	
Turn-on delay time	t <sub>d(on)</sub>		60		ns	I <sub>D</sub> = 44 A	
Rise time	t <sub>r</sub>		370		ns	V <sub>GS</sub> = 10 V	
Turn-off delay time	t <sub>d(off)</sub>		200	_	ns	$R_L = 3.4 \Omega$	
Fall time	t <sub>f</sub>	_	280	_	ns	$Rg = 10 \Omega$	
Total Gate charge	Qg	_	95	_	nC	V <sub>DD</sub> = 240 V	
Gate to Source charge	Qgs	_	25	_	nC	V <sub>GS</sub> = 10 V	
Gate to Drain charge	Qgd	_	40	_	nC	I <sub>D</sub> = 88 A	
Body-Drain diode forward voltage	$V_{DF}$	_	1.0	1.5	V	$I_F = 88 \text{ A}, V_{GS} = 0^{\text{Note4}}$	
Body-Drain diode reverse recovery time	trr	_	260	_	ns	I <sub>F</sub> = 88 A, V <sub>GS</sub> = 0	
Body-Drain diode reverse recovery	Qrr	_	2.5	_	μС	diF/dt = 100 A/μs	
charge							

Notes: 4. Pulse test

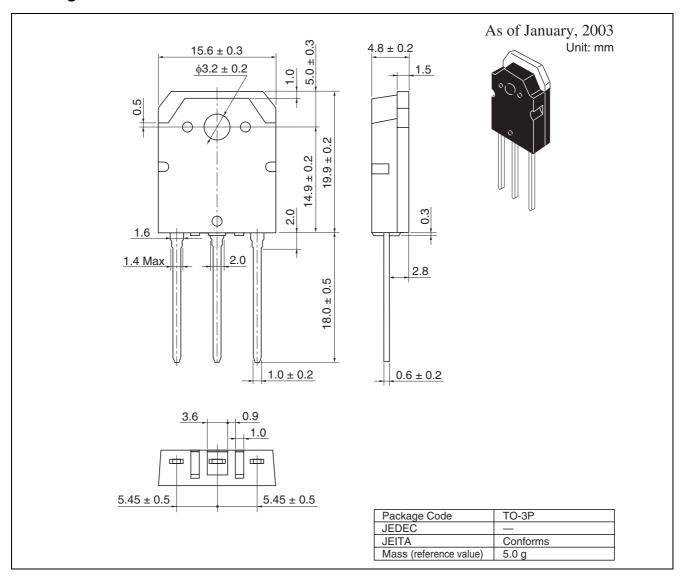
#### **Main Characteristics**







### **Package Dimensions**



# **Ordering Information**

Part Name	Quantity	Shipping Container
H5N3011P-E	30 pcs	Plastic magazine

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