

H5N1506P

Silicon N Channel MOS FET High Speed Power Switching

REJ03G0389-0200

Rev.2.00

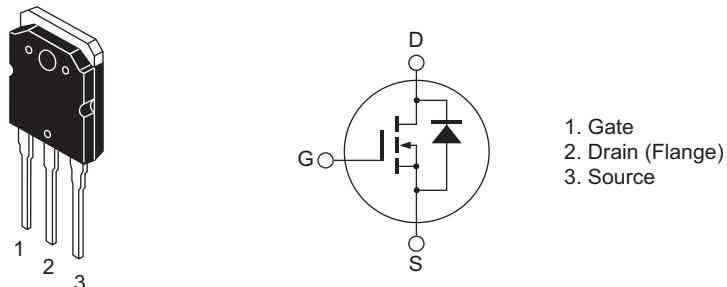
Jul 03, 2006

Features

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

Outline

RENESAS Package code: PRSS0004ZE-A
(Package name: TO-3P)



Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to Source voltage	V _{DSS}	150	V
Gate to Source voltage	V _{GSS}	±30	V
Drain current	I _D	98	A
Drain peak current	I _D (pulse) ^{Note1}	294	A
Body-Drain diode reverse Drain current	I _{DR}	98	A
Body-Drain diode reverse Drain peak current	I _{DR} (pulse) ^{Note1}	294	A
Avalanche current	I _{AP} ^{Note3}	48	A
Avalanche energy	E _{AR} ^{Note3}	172	mJ
Channel dissipation	P _{ch} ^{Note2}	150	W
Channel to case thermal impedance	θ _{ch-c}	0.833	°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. ST_{ch} = 25°C, T_{ch} ≤ 150°C

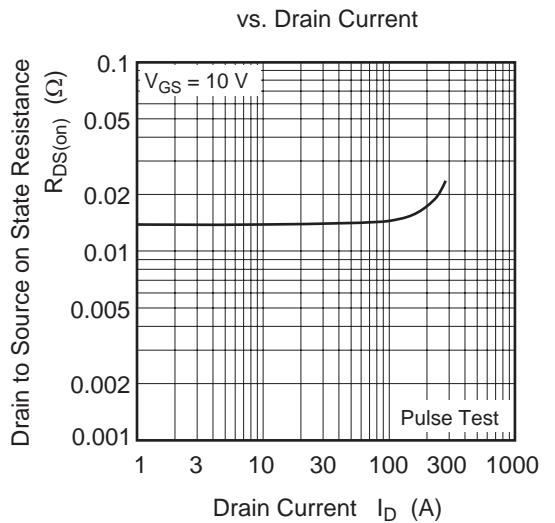
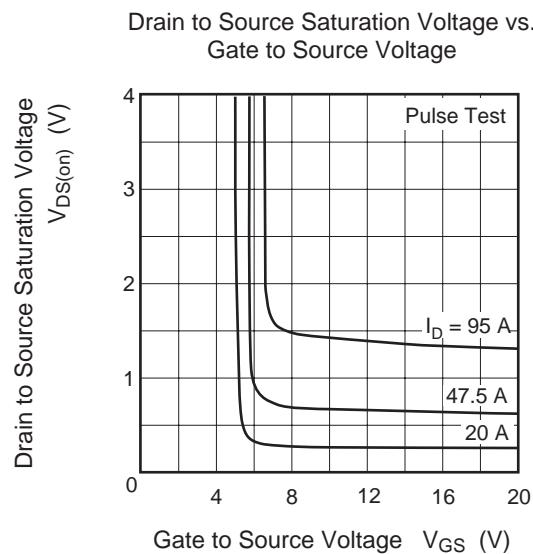
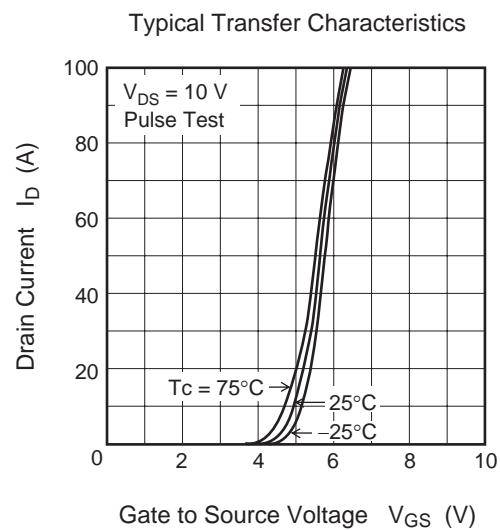
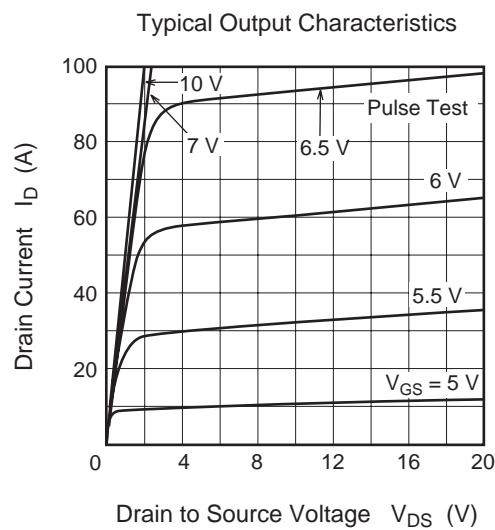
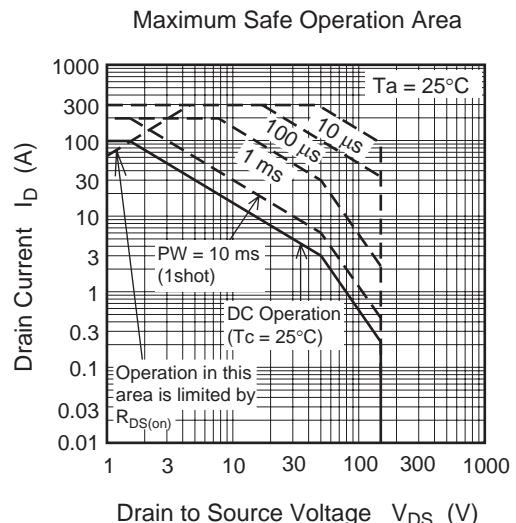
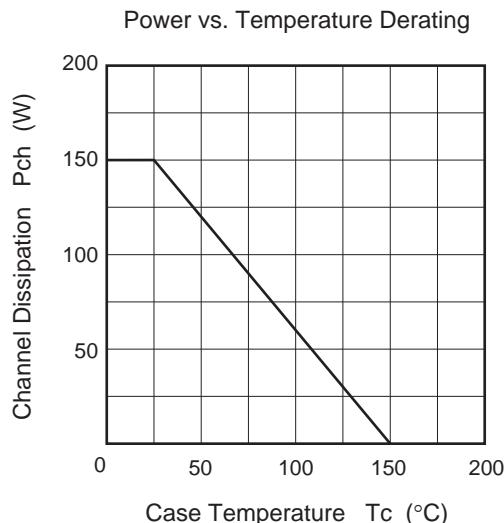
Electrical Characteristics

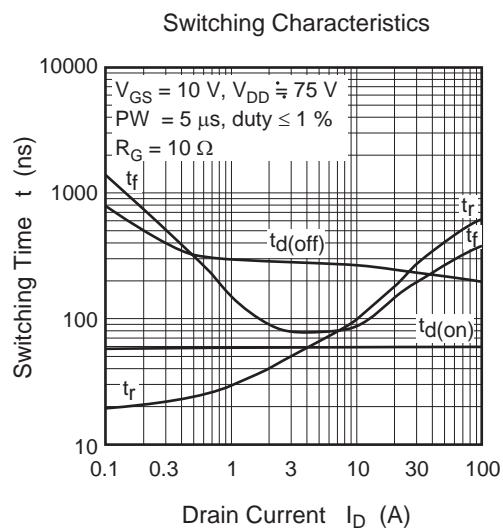
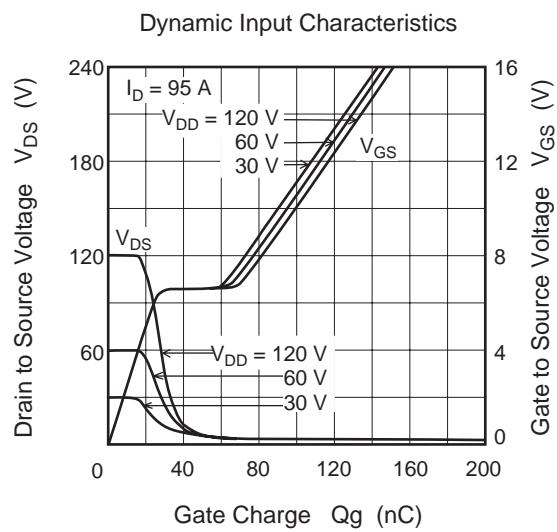
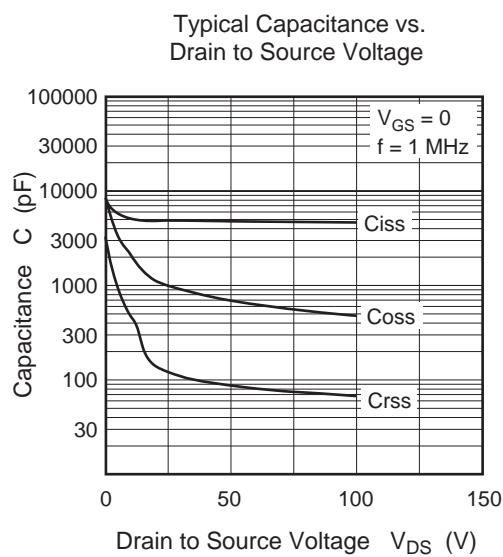
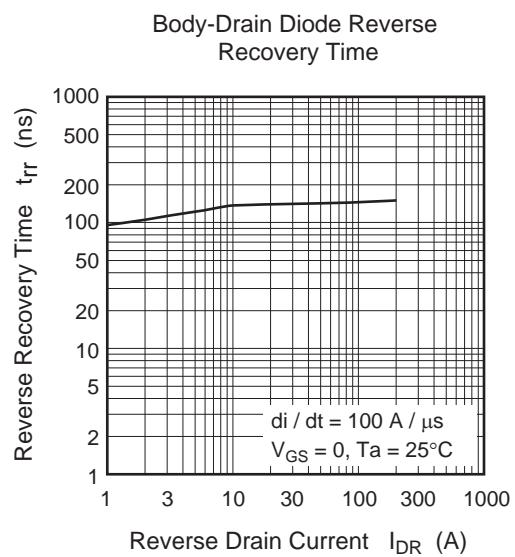
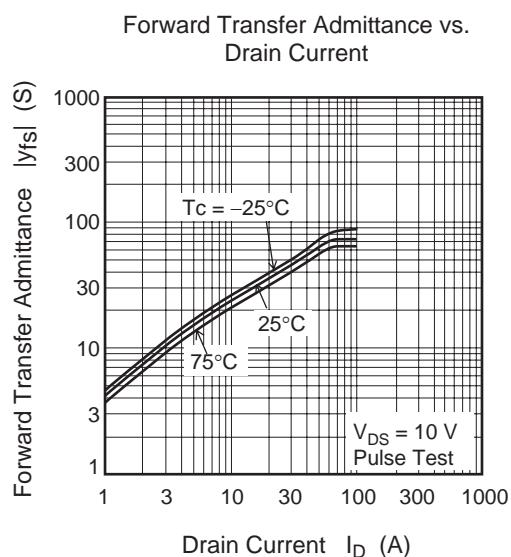
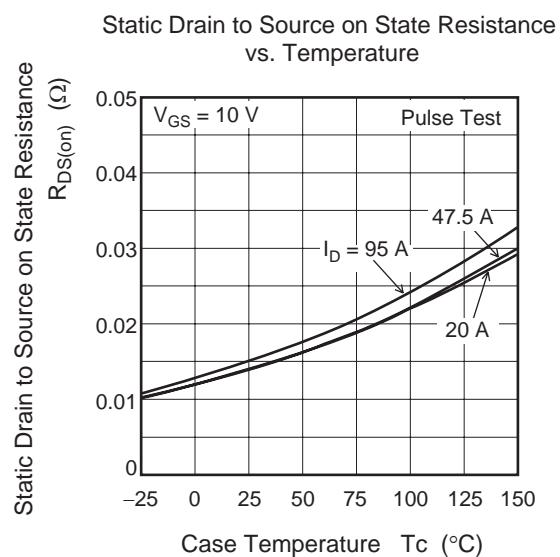
(Ta = 25°C)

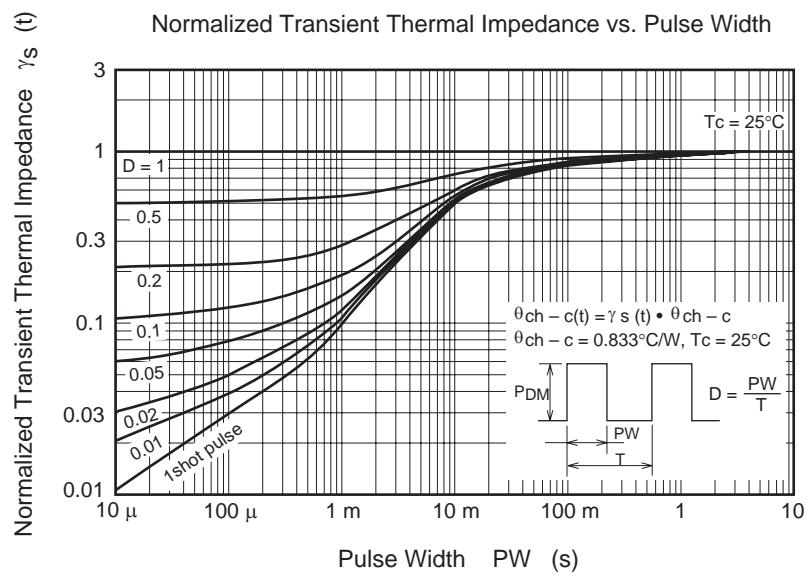
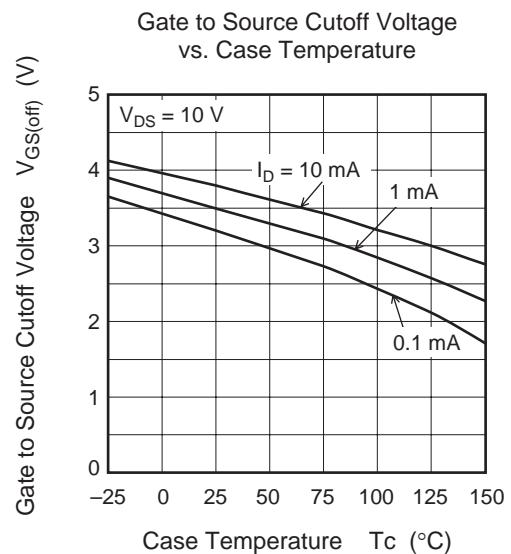
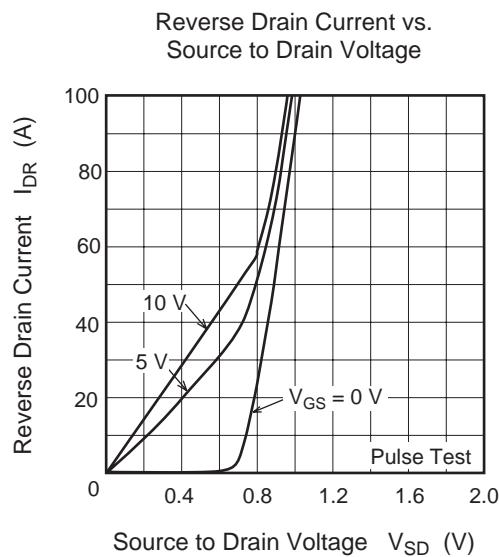
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to Source breakdown voltage	V _{(BR)DSS}	150	—	—	V	I _D = 10 mA, V _{GS} = 0
Zero Gate voltage Drain current	I _{DSS}	—	—	1	μA	V _{DS} = 150 V, V _{GS} = 0
Gate to Source leak current	I _{GSS}	—	—	±0.1	μA	V _{GS} = ±30 V, V _{DS} = 0
Gate to Source cutoff voltage	V _{GS(off)}	3.0	—	4.5	V	V _{DS} = 10 V, I _D = 1 mA
Forward transfer admittance	y _{fs}	36	60	—	S	I _D = 47.5 A, V _{DS} = 10 V ^{Note4}
Static Drain to Source on state resistance	R _{DS(on)}	—	0.014	0.016	Ω	I _D = 47.5 A, V _{GS} = 10 V ^{Note4}
Input capacitance	C _{iss}	—	4900	—	pF	V _{DS} = 25 V
Output capacitance	C _{oss}	—	1000	—	pF	V _{GS} = 0
Reverse transfer capacitance	C _{rss}	—	120	—	pF	f = 1 MHz
Turn-on delay time	t _{d(on)}	—	60	—	ns	I _D = 47.5 A
Rise time	t _r	—	380	—	ns	V _{GS} = 10 V
Turn-off delay time	t _{d(off)}	—	220	—	ns	R _L = 1.58 Ω
Fall time	t _f	—	250	—	ns	R _g = 10 Ω
Total Gate charge	Q _g	—	100	—	nC	V _{DD} = 120 V
Gate to Source charge	Q _{gs}	—	24	—	nC	V _{GS} = 10 V
Gate to Drain charge	Q _{gd}	—	45	—	nC	I _D = 95 A
Body-Drain diode forward voltage	V _{DF}	—	1.0	1.5	V	I _F = 95 A, V _{GS} = 0 ^{Note4}
Body-Drain diode reverse recovery time	trr	—	150	—	ns	I _F = 95 A, V _{GS} = 0
Body-Drain diode reverse recovery charge	Q _{rss}	—	1.0	—	μC	di _F /dt = 100 A/μs

Notes: 4. Pulse test

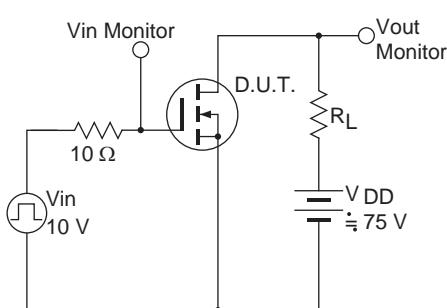
Main Characteristics



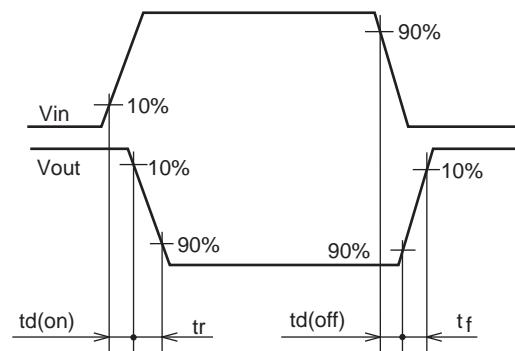




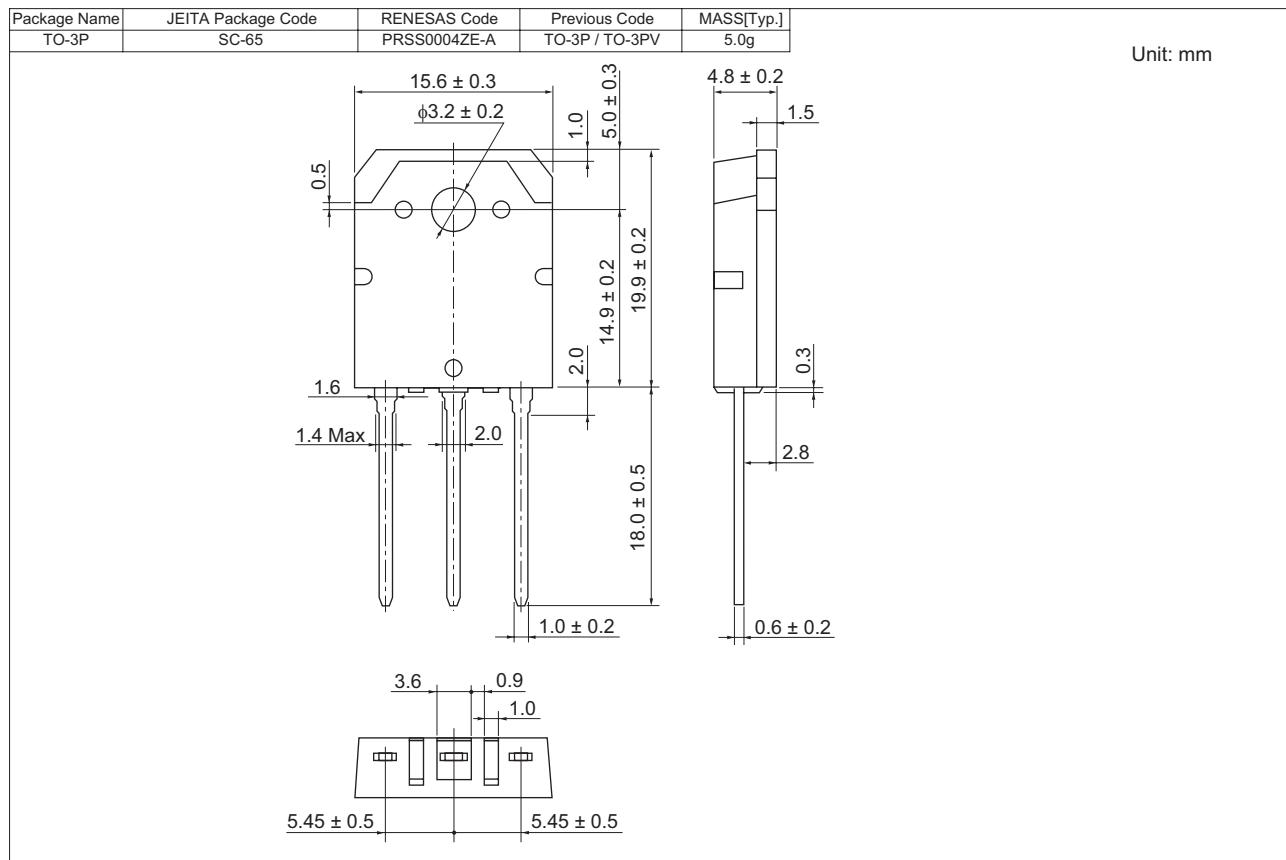
Switching Time Test Circuit



Waveform



Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
H5N1506P-E	360 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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