

RJK4515DPK

Silicon N Channel MOS FET
High Speed Power Switching

REJ03G1869-0100

Rev.1.00

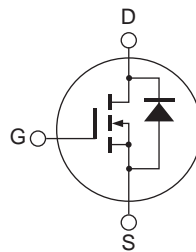
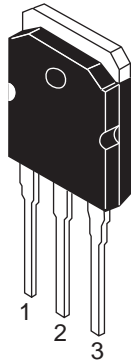
Dec 08, 2009

Features

- Low on-resistance
 $R_{DS(on)} = 0.171 \Omega$ typ. (at $I_D = 13.5 \text{ A}$, $V_{GS} = 10 \text{ V}$, $T_a = 25^\circ\text{C}$)
- Low leakage current
- High speed switching

Outline

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



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

Absolute Maximum Ratings

($T_a = 25^\circ\text{C}$)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	450	V
Gate to source voltage	V_{GSS}	± 30	V
Drain current	I_D	27	A
Drain peak current	$I_{D(pulse)}$ ^{Note1}	81	A
Body-drain diode reverse drain current	I_{DR}	27	A
Body-drain diode reverse drain peak current	$I_{DR(pulse)}$ ^{Note1}	81	A
Avalanche current	I_{AP} ^{Note3}	8	A
Avalanche energy	E_{AR} ^{Note3}	3.6	mJ
Channel dissipation	P_{ch} ^{Note2}	150	W
Channel to case thermal impedance	θ_{ch-c}	0.833	$^\circ\text{C/W}$
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

- Notes: 1. $PW \leq 10 \mu\text{s}$, duty cycle $\leq 1 \%$
 2. Value at $T_c = 25^\circ\text{C}$
 3. $ST_{ch} = 25^\circ\text{C}$, $T_{ch} \leq 150^\circ\text{C}$

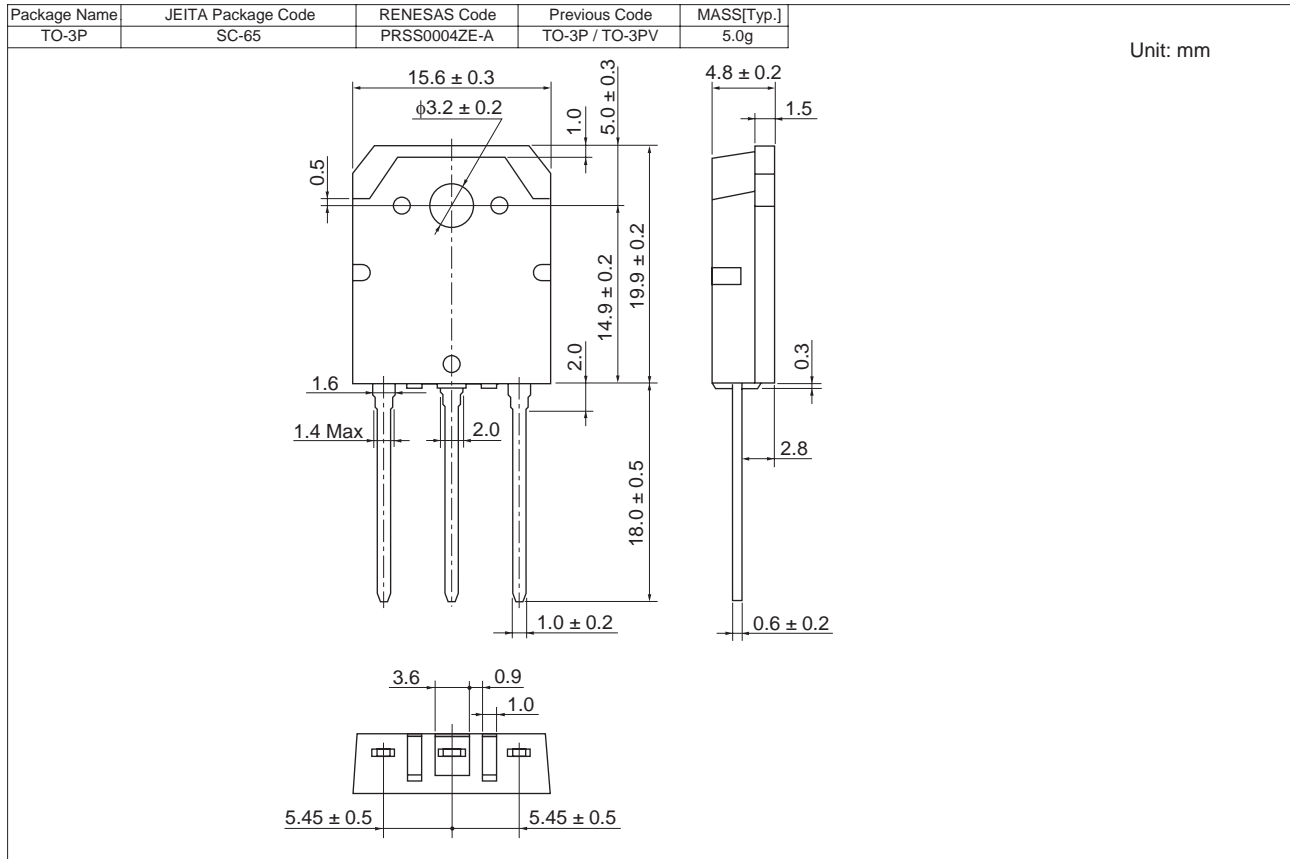
Electrical Characteristics

(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	450	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	1	μA	$V_{DS} = 450 \text{ V}$, $V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 0.1	μA	$V_{GS} = \pm 30 \text{ V}$, $V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	3.0	—	4.5	V	$V_{DS} = 10 \text{ V}$, $I_D = 1 \text{ mA}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.171	0.200	Ω	$I_D = 13.5 \text{ A}$, $V_{GS} = 10 \text{ V}$ ^{Note4}
Input capacitance	C_{iss}	—	2600	—	pF	$V_{DS} = 25 \text{ V}$ $V_{GS} = 0$ $f = 1 \text{ MHz}$
Output capacitance	C_{oss}	—	283	—	pF	
Reverse transfer capacitance	C_{rss}	—	34	—	pF	
Turn-on delay time	$t_{d(on)}$	—	40	—	ns	$I_D = 13.5 \text{ A}$ $V_{GS} = 10 \text{ V}$ $R_L = 16.7 \Omega$ $R_g = 10 \Omega$
Rise time	t_r	—	65	—	ns	
Turn-off delay time	$t_{d(off)}$	—	103	—	ns	
Fall time	t_f	—	52	—	ns	
Total gate charge	Q_g	—	61.8	—	nC	$V_{DD} = 360 \text{ V}$ $V_{GS} = 10 \text{ V}$ $I_D = 27 \text{ A}$
Gate to source charge	Q_{gs}	—	13.0	—	nC	
Gate to drain charge	Q_{gd}	—	27.5	—	nC	
Body-drain diode forward voltage	V_{DF}	—	0.92	1.50	V	$I_F = 27 \text{ A}$, $V_{GS} = 0$ ^{Note4}
Body-drain diode reverse recovery time	t_{rr}	—	360	—	ns	$I_F = 27 \text{ A}$, $V_{GS} = 0$ $di_F/dt = 100 \text{ A}/\mu\text{s}$

Notes: 4. Pulse test

Package Dimensions



Ordering Information

Part No.	Quantity	Shipping Container
RJK4515DPK-00-T0	360 pcs	Box (Tube)

Notes:

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