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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

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Keep safety first in your circuit designs!

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2SK1519, 2SK1520

Silicon N-Channel MOS FET

RENESAS

ADE-208-1288 (Z)
1st. Edition
Mar. 2001

Application

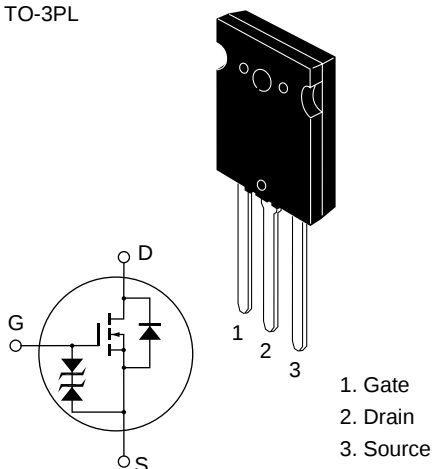
High speed power switching

Features

- Low on-resistance
- High speed switching
- Low drive current
- Built-in fast recovery diode ($t_{rr} = 120 \text{ ns}$)
- Suitable for motor control, switching regulator, DC-DC converter

Outline

TO-3PL



2SK1519, 2SK1520

Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	Ratings	Unit
Drain to source voltage	2SK1519	V_{DSS}	450	V
	2SK1520		500	
Gate to source voltage		V_{GSS}	±30	V
Drain current		I_D	30	A
Drain peak current		$I_{D(pulse)}^{*1}$	120	A
Body to drain diode reverse drain current		I_{DR}	30	A
Channel dissipation		Pch^{*2}	200	W
Channel temperature		Tch	150	°C
Storage temperature		Tstg	–55 to +150	°C

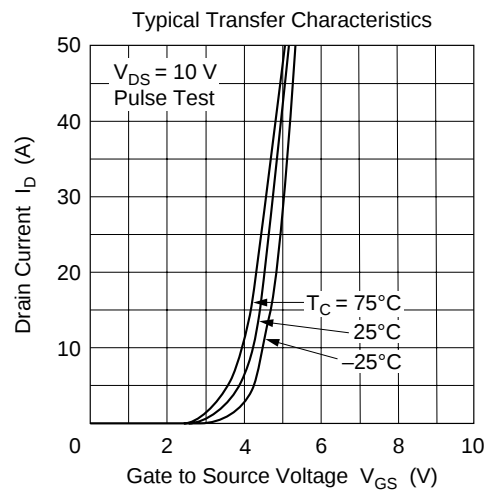
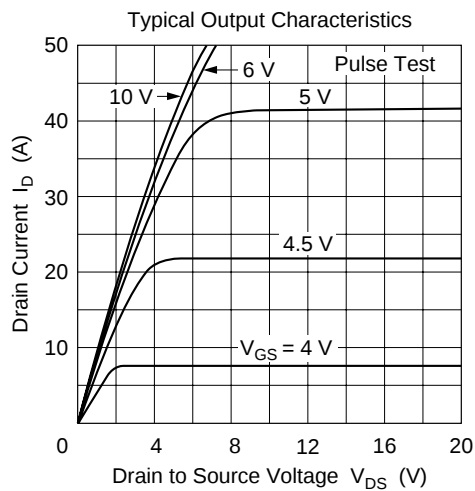
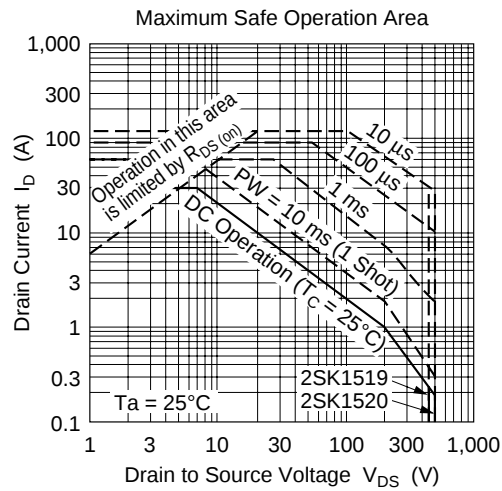
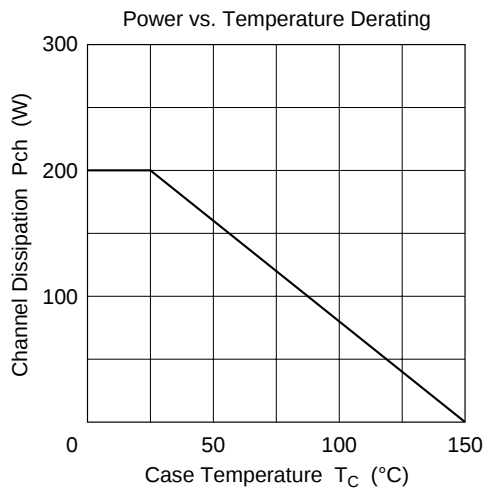
Notes: 1. $PW \leq 10 \mu s$, duty cycle $\leq 1\%$

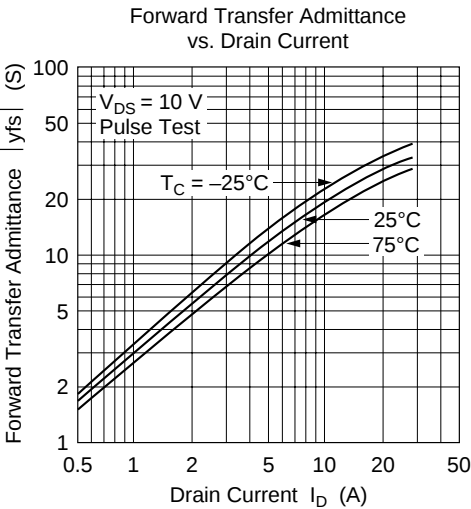
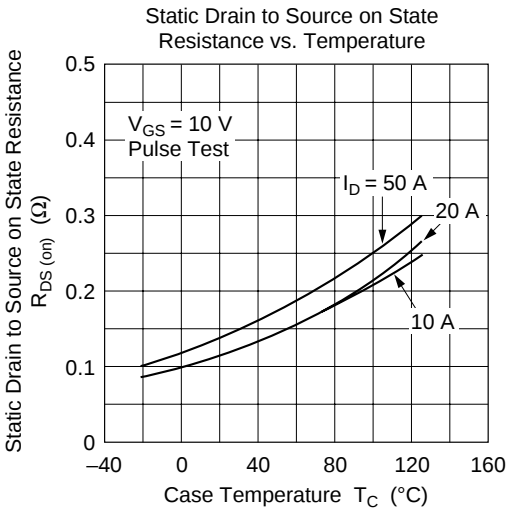
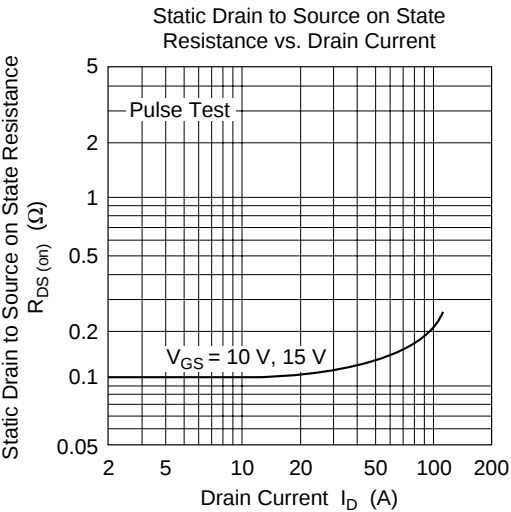
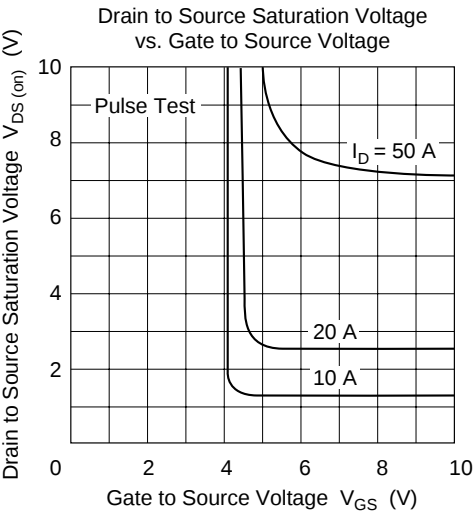
2. Value at $T_C = 25^\circ C$

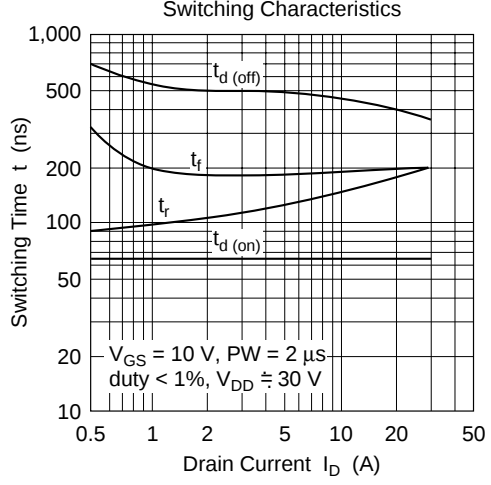
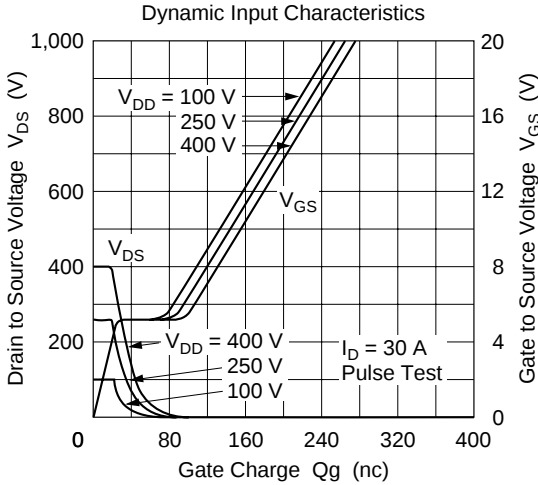
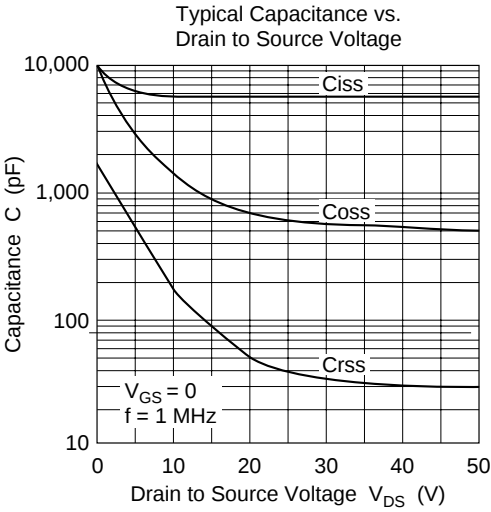
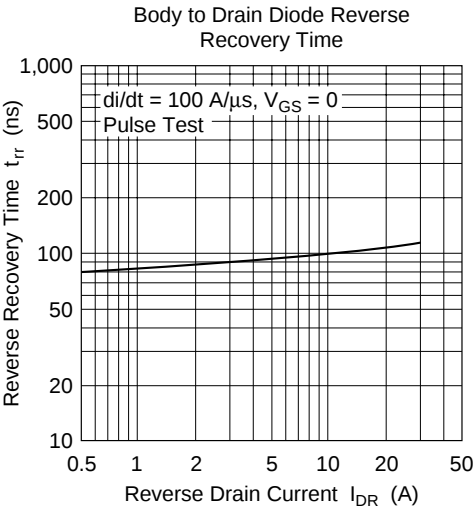
Electrical Characteristics (Ta = 25°C)

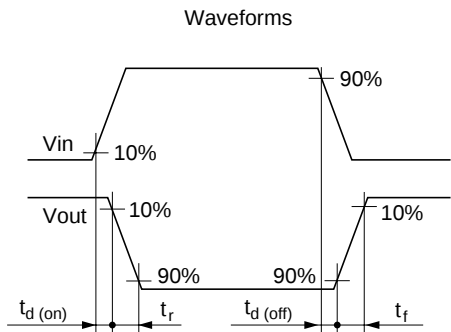
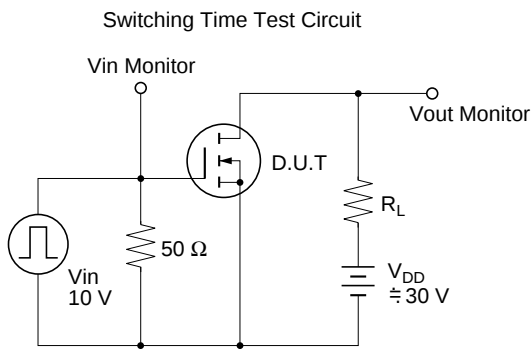
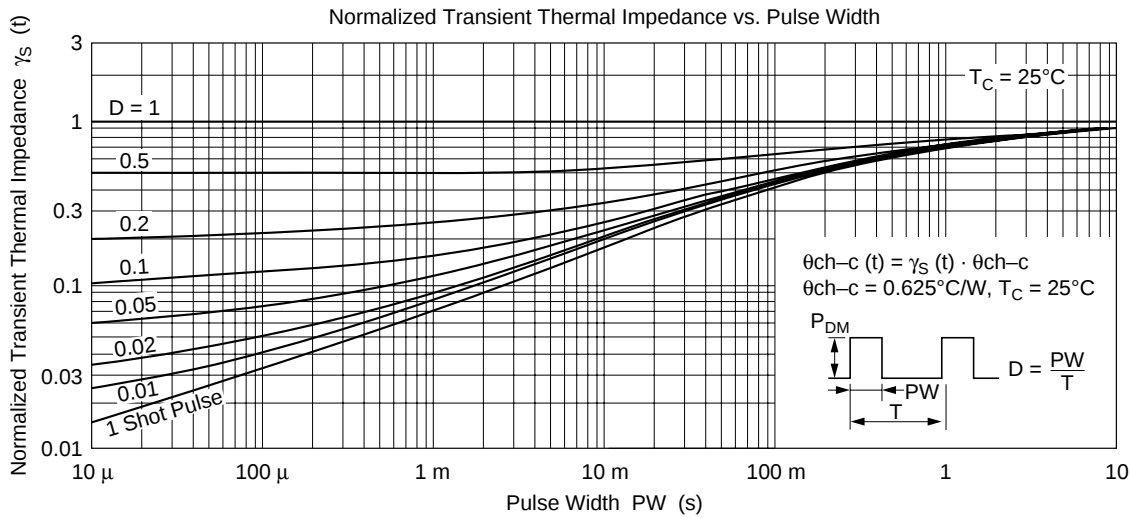
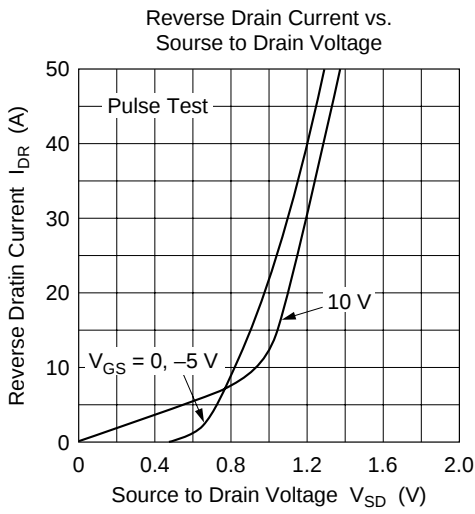
Item		Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK1519 2SK1520	$V_{(BR)DSS}$	450 500	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage		$V_{(BR)GSS}$	± 30	—	—	V	$I_G = \pm 100 \text{ }\mu\text{A}$, $V_{DS} = 0$
Gate to source leak current		I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 25 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	2SK1519 2SK1520	I_{DSS}	—	—	250	μA	$V_{DS} = 360 \text{ V}$, $V_{GS} = 0$ $V_{DS} = 400 \text{ V}$, $V_{GS} = 0$
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 state resistance	2SK1519 2SK1520	$R_{DS(on)}$	— —	0.11 0.12	0.15 0.16	Ω	$I_D = 15 \text{ A}$, $V_{GS} = 10 \text{ V}^{*1}$
Forward transfer admittance		$ y_{fs} $	15	25	—	S	$I_D = 15 \text{ A}$, $V_{DS} = 10 \text{ V}^{*1}$
Input capacitance		C_{iss}	—	5800	—	pF	$V_{DS} = 10 \text{ V}$, $V_{GS} = 0$,
Output capacitance		C_{oss}	—	1550	—	pF	$f = 1 \text{ MHz}$
Reverse transfer capacitance		C_{rss}	—	170	—	pF	
Turn-on delay time		$t_{d(on)}$	—	65	—	ns	$I_D = 15 \text{ A}$, $V_{GS} = 10 \text{ V}$,
Rise time		t_r	—	170	—	ns	$R_L = 2 \text{ }\Omega$
Turn-off delay time		$t_{d(off)}$	—	415	—	ns	
Fall time		t_f	—	200	—	ns	
Body to drain diode forward voltage		V_{DF}	—	1.1	—	V	$I_F = 30 \text{ A}$, $V_{GS} = 0$
Body to drain diode reverse recovery time		t_{rr}	—	120	—	ns	$I_F = 30 \text{ A}$, $V_{GS} = 0$, $di_F/dt = 100 \text{ A}/\mu\text{s}$

Note: 1. Pulse test



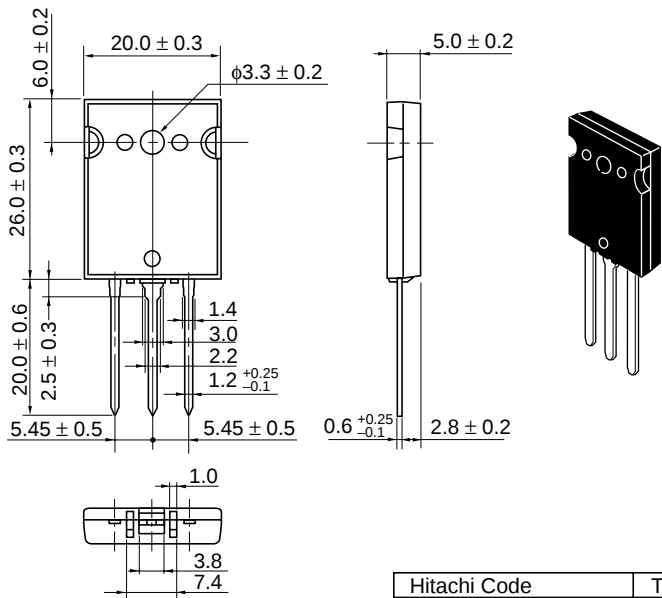






Package Dimensions

As of January, 2001
Unit: mm



Hitachi Code	TO-3PL
JEDEC	—
EIAJ	—
Mass (reference value)	9.9 g

Cautions

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