

To all our customers

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

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# 2SK1526, 2SK1527

Silicon N-Channel MOS FET

**RENESAS**

ADE-208-1290 (Z)  
1st. Edition  
Mar. 2001

## Application

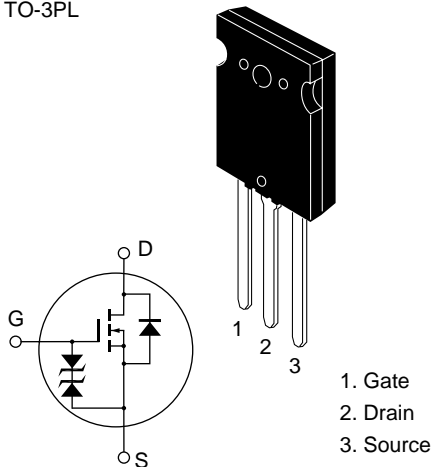
High speed power switching

## Features

- Low on-resistance
- High speed switching
- Low drive current
- No secondary breakdown
- Suitable for switching regulator and DC-DC converter

## Outline

TO-3PL



## 2SK1526, 2SK1527

### Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	Ratings	Unit
Drain to source voltage	2SK1526	$V_{DSS}$	450	V
	2SK1527		500	
Gate to source voltage		$V_{GSS}$	±30	V
Drain current		$I_D$	40	A
Drain peak current		$I_{D(pulse)}^{*1}$	160	A
Body to drain diode reverse drain current		$I_{DR}$	40	A
Channel dissipation		$Pch^{*2}$	250	W
Channel temperature		Tch	150	°C
Storage temperature		Tstg	-55 to +150	°C

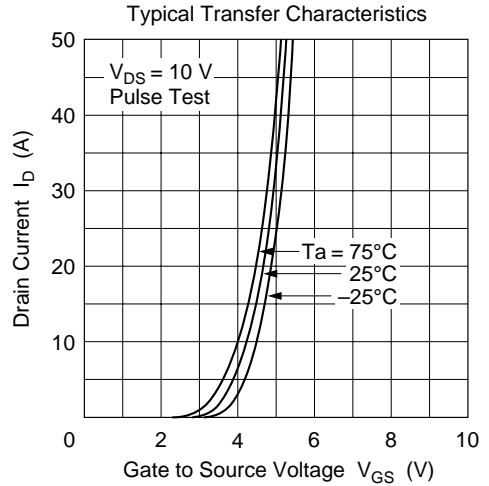
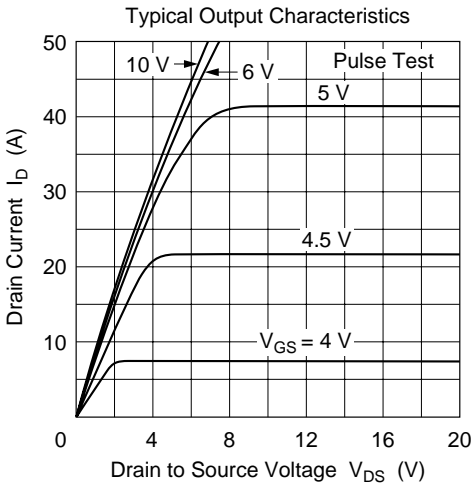
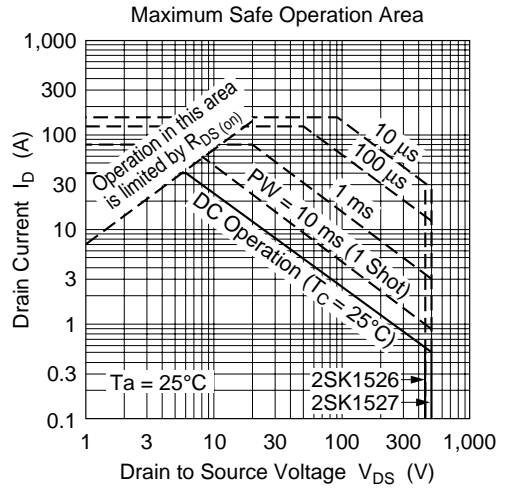
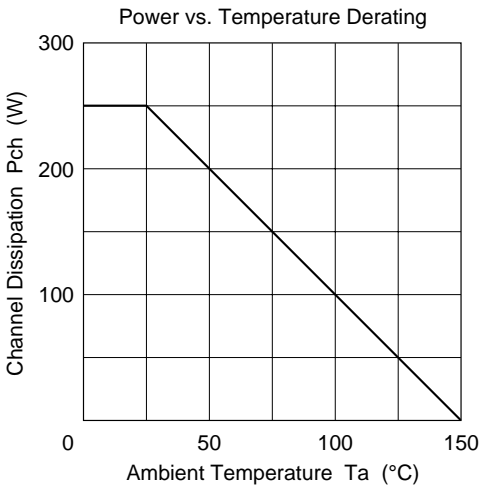
Notes: 1.  $PW \leq 10 \mu s$ , duty cycle  $\leq 1\%$

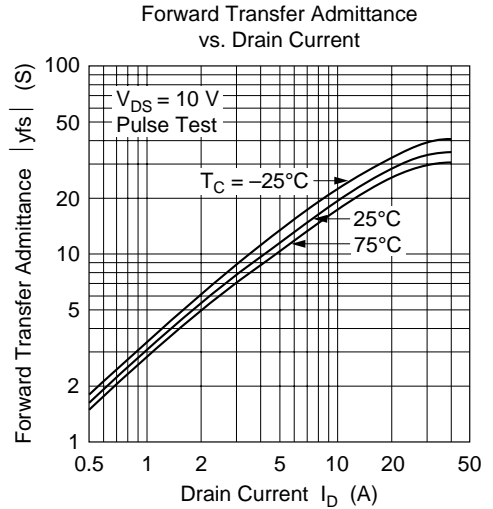
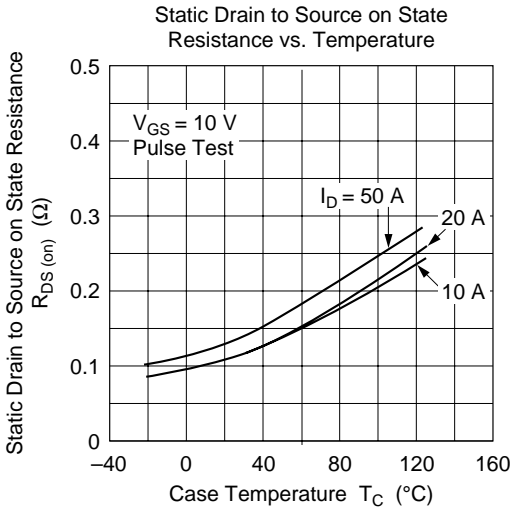
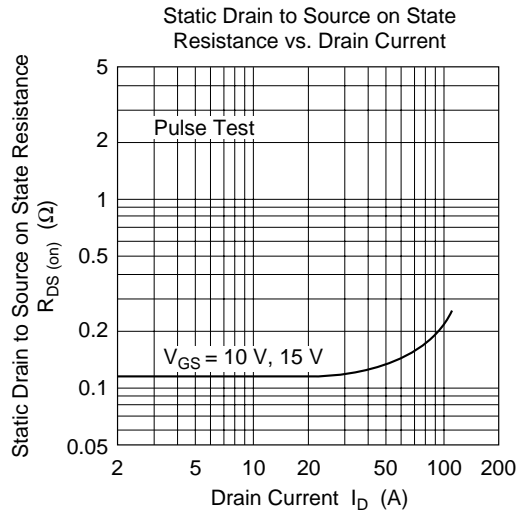
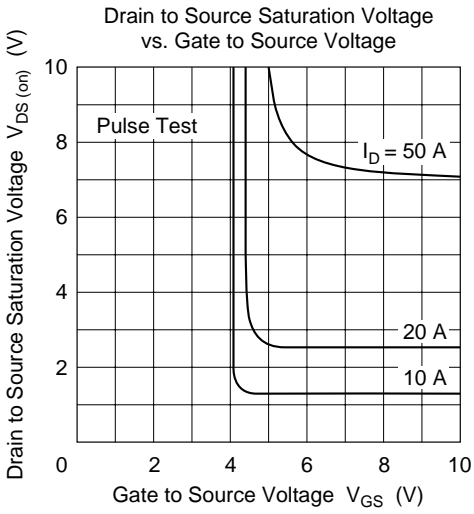
2. Value at  $T_C = 25^\circ C$

## Electrical Characteristics (Ta = 25°C)

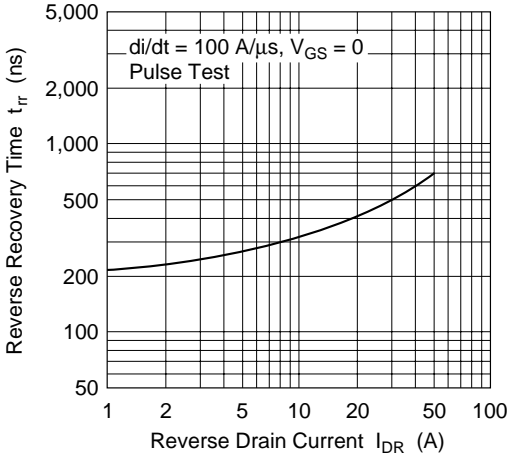
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK1526 $V_{(BR)DSS}$ 2SK1527	450 500	—	—	V	$I_D = 10 \text{ mA}$ , $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	$\pm 30$	—	—	V	$I_G = \pm 100 \mu\text{A}$ , $V_{DS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	$\pm 10$	$\mu\text{A}$	$V_{GS} = \pm 25 \text{ V}$ , $V_{DS} = 0$
Zero gate voltage drain current	2SK1526 $I_{DSS}$ 2SK1527	—	—	250	$\mu\text{A}$	$V_{DS} = 360 \text{ V}$ , $V_{GS} = 0$ $V_{DS} = 400 \text{ V}$ , $V_{GS} = 0$
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	2SK1526 $R_{DS(on)}$ 2SK1527	—	0.11 0.12	0.15 0.16	$\Omega$	$I_D = 20 \text{ A}$ , $V_{GS} = 10 \text{ V}^{*1}$
Forward transfer admittance	$ y_{fs} $	20	30	—	S	$I_D = 20 \text{ A}$ , $V_{DS} = 10 \text{ V}^{*1}$
Input capacitance	$C_{iss}$	—	5800	—	pF	$V_{DS} = 10 \text{ V}$ , $V_{GS} = 0$ ,
Output capacitance	$C_{oss}$	—	1430	—	pF	$f = 1 \text{ MHz}$
Reverse transfer capacitance	$C_{rss}$	—	150	—	pF	
Turn-on delay time	$t_{d(on)}$	—	60	—	ns	$I_D = 20 \text{ A}$ , $V_{GS} = 10 \text{ V}$ ,
Rise time	$t_r$	—	175	—	ns	$R_L = 1.5 \Omega$
Turn-off delay time	$t_{d(off)}$	—	420	—	ns	
Fall time	$t_f$	—	160	—	ns	
Body to drain diode forward voltage	$V_{DF}$	—	1.2	—	V	$I_F = 40 \text{ A}$ , $V_{GS} = 0$
Body to drain diode reverse recovery time	$t_{rr}$	—	600	—	ns	$I_F = 40 \text{ A}$ , $V_{GS} = 0$ , $di_F/dt = 100 \text{ A}/\mu\text{s}$

Note: 1. Pulse test

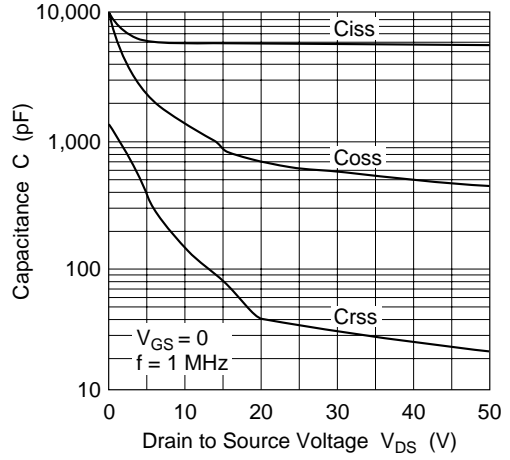




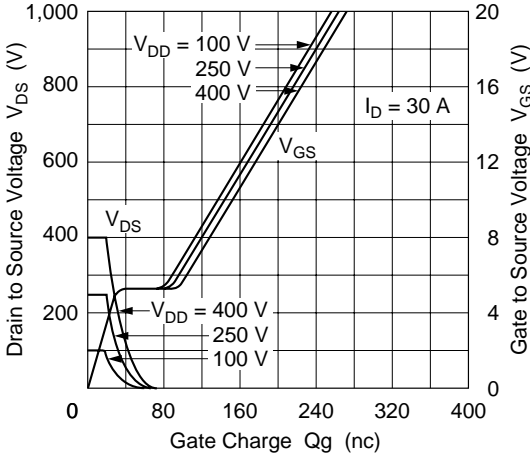
Body to Drain Diode Reverse Recovery Time



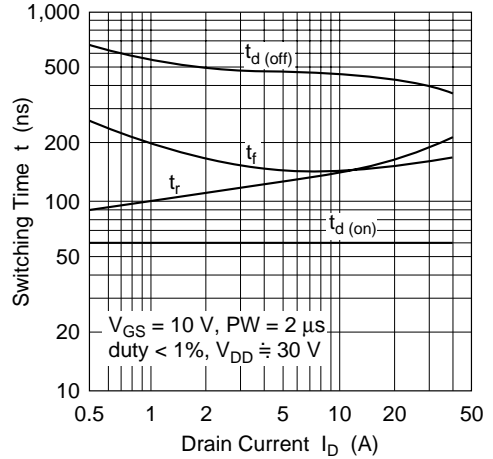
Typical Capacitance vs. Drain to Source Voltage



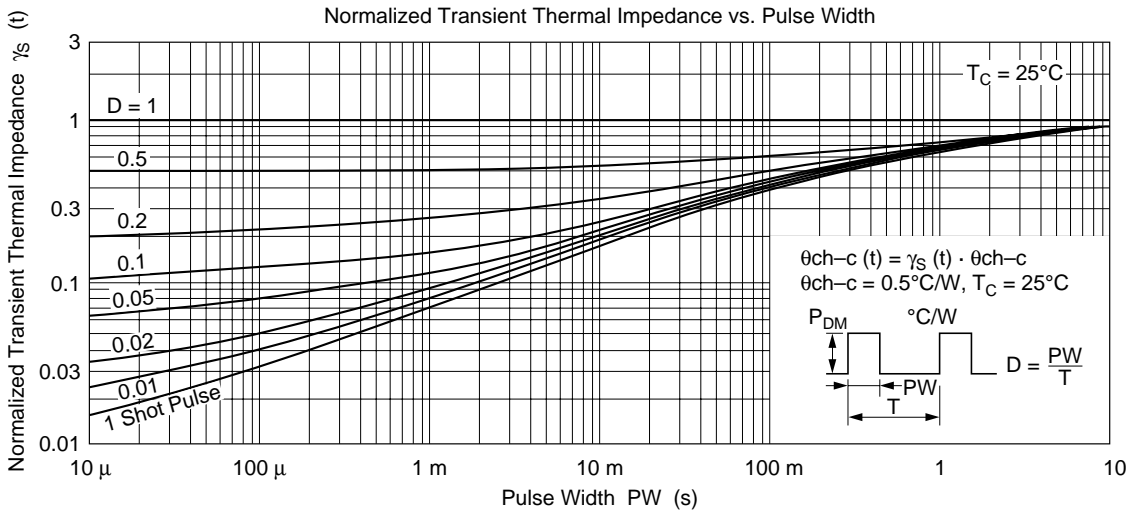
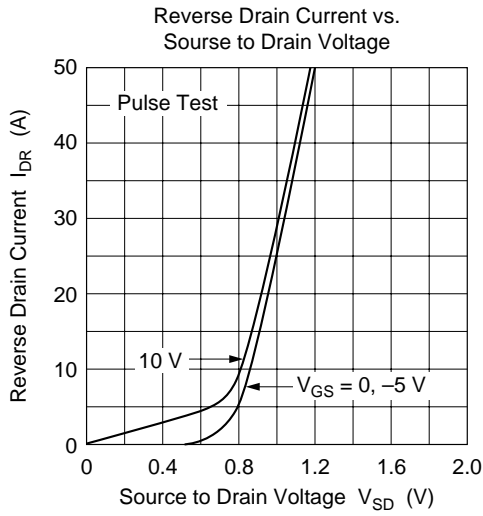
Dynamic Input Characteristics



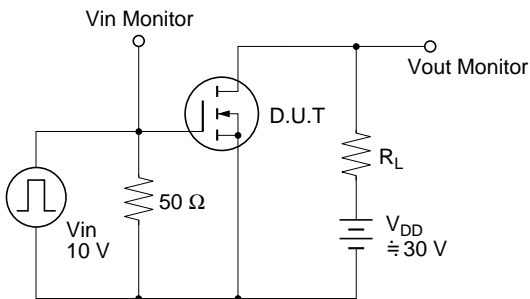
Switching Characteristics



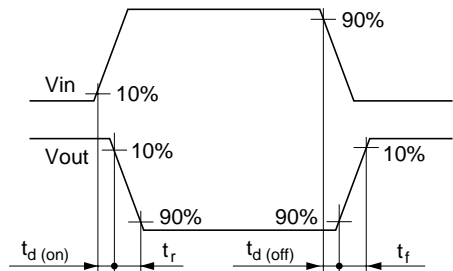




Switching Time Test Circuit

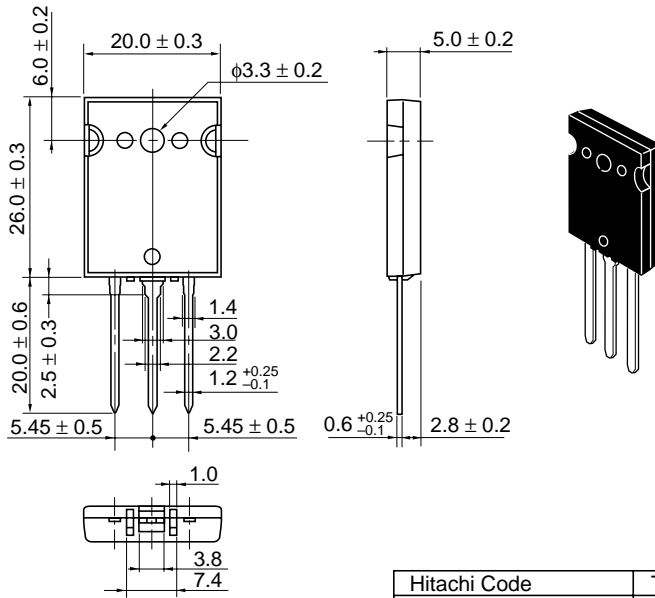


Waveforms



Package Dimensions

As of January, 2001  
Unit: mm



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

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