

To all our customers

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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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Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of nonflammable material or (iii) prevention against any malfunction or mishap.

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# 2SK1155, 2SK1156

Silicon N-Channel MOS FET

## RENESAS

ADE-208-1247 (Z)  
1st. Edition  
Mar. 2001

### Application

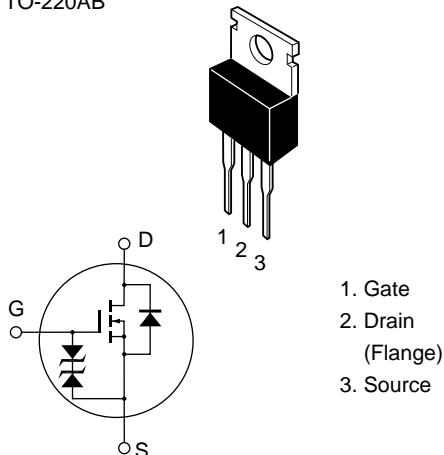
High speed power switching

### Features

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

### Outline

TO-220AB



## 2SK1155, 2SK1156

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

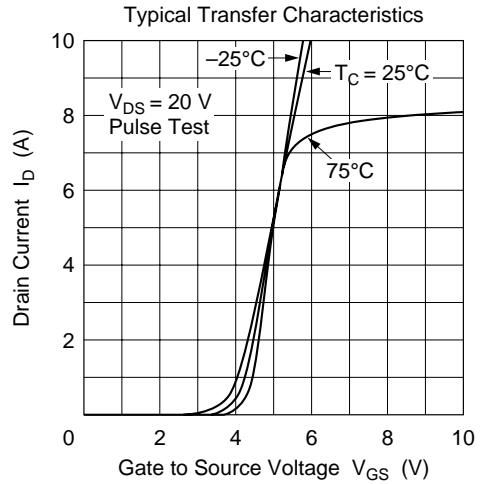
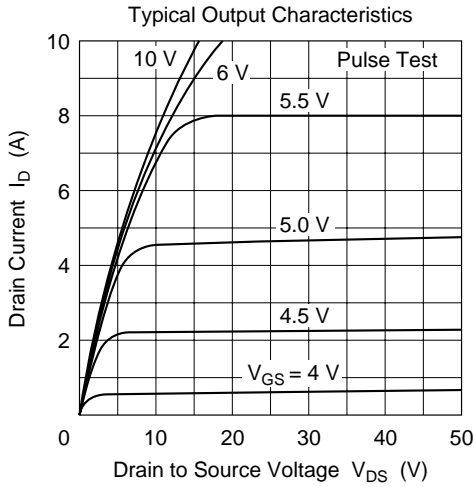
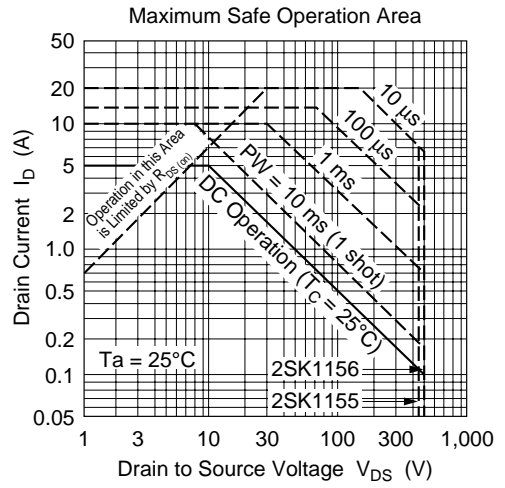
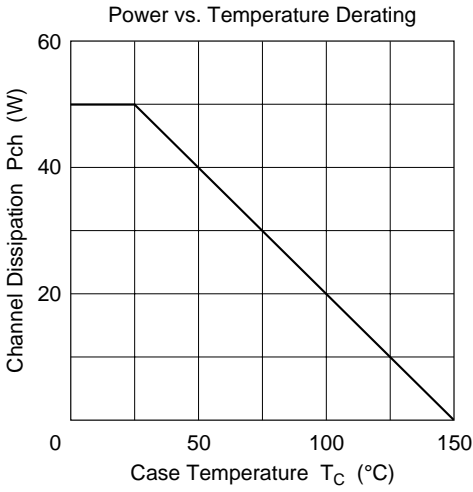
Item		Symbol	Ratings	Unit
Drain to source voltage	2SK1155	$V_{DSS}$	450	V
	2SK1156		500	
Gate to source voltage		$V_{GSS}$	±30	V
Drain current		$I_D$	5	A
Drain peak current		$I_{D(pulse)}^{*1}$	20	A
Body to drain diode reverse drain current		$I_{DR}$	5	A
Channel dissipation		$Pch^{*2}$	50	W
Channel temperature		Tch	150	°C
Storage temperature		Tstg	-55 to +150	°C

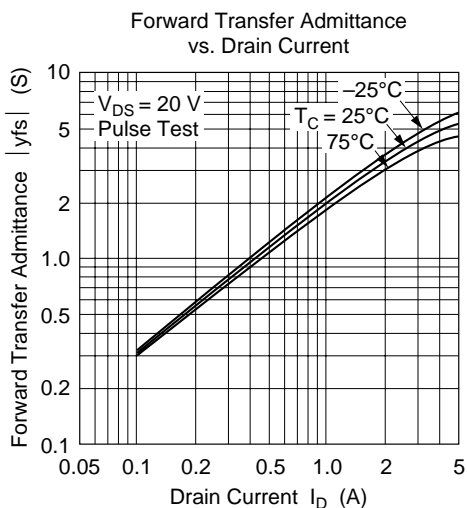
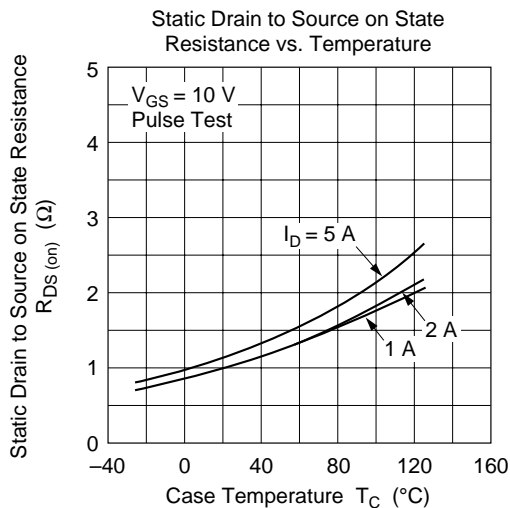
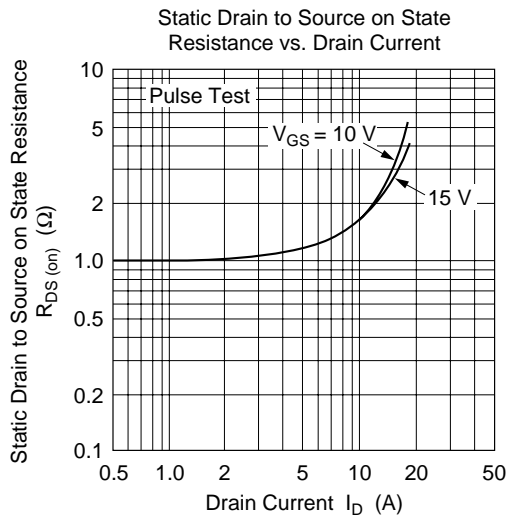
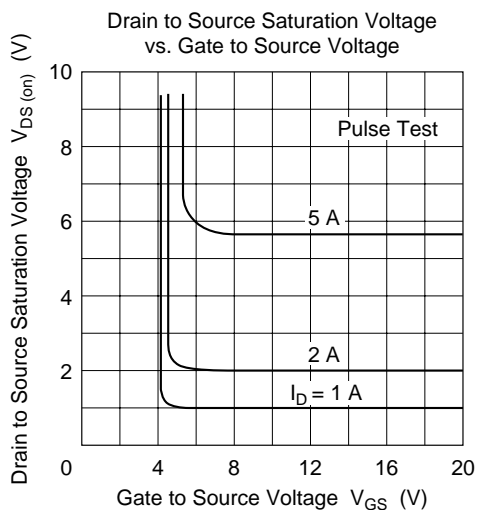
Note: 1.  $PW \leq 10 \mu s$ , duty cycle  $\leq 1\%$   
2. Value at  $T_C = 25^\circ C$

## Electrical Characteristics (Ta = 25°C)

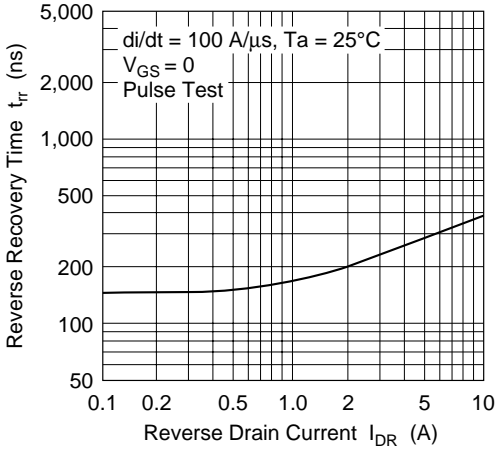
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	2SK1155 2SK1156 $V_{(BR)DSS}$	450 500	—	—	V	$I_D = 10 \text{ mA}, V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	±30	—	—	V	$I_G = \pm 100 \mu\text{A}, V_{DS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	±10	μA	$V_{GS} = \pm 25 \text{ V}, V_{DS} = 0$
Zero gate voltage drain current	2SK1155 2SK1156 $I_{DSS}$	—	—	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 statesistance	2SK1155 2SK1156 $R_{DS(on)}$	—	1.0 1.2	1.4 1.5	Ω	$I_D = 2.5 \text{ A}, V_{GS} = 10 \text{ V}^{*1}$
Forward transfer admittance	yfs	2.5	4.0	—	S	$I_D = 2.5 \text{ A}, V_{DS} = 10 \text{ V}^{*1}$
Input capacitance	Ciss	—	640	—	pF	$V_{DS} = 10 \text{ V}, V_{GS} = 0,$
Output capacitance	Coss	—	160	—	pF	$f = 1 \text{ MHz}$
Reverse transfer capacitance	Crss	—	20	—	pF	
Turn-on delay time	$t_{d(on)}$	—	10	—	ns	$I_D = 2.5 \text{ A}, V_{GS} = 10 \text{ V},$
Rise time	$t_r$	—	25	—	ns	$R_L = 12 \Omega$
Turn-off delay time	$t_{d(off)}$	—	50	—	ns	
Fall time	$t_f$	—	30	—	ns	
Body to drain diode forward voltage	$V_{DF}$	—	0.95	—	V	$I_F = 5 \text{ A}, V_{GS} = 0$
Body to drain diode reverse recovery time	$t_{rr}$	—	300	—	ns	$I_F = 5 \text{ A}, V_{GS} = 0,$ $di_F/dt = 100 \text{ A}/\mu\text{s}$

Note: 1. Pulse test

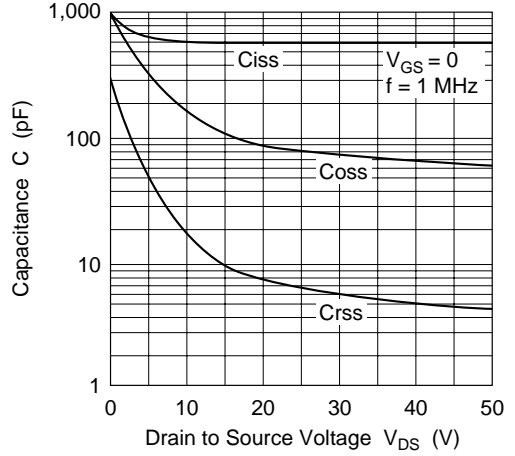




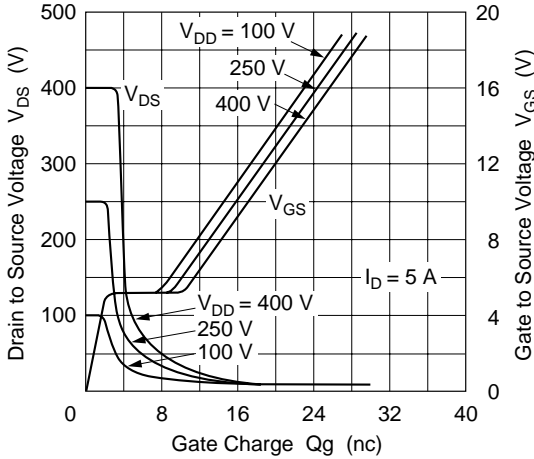
Body to Drain Diode Reverse Recovery Time



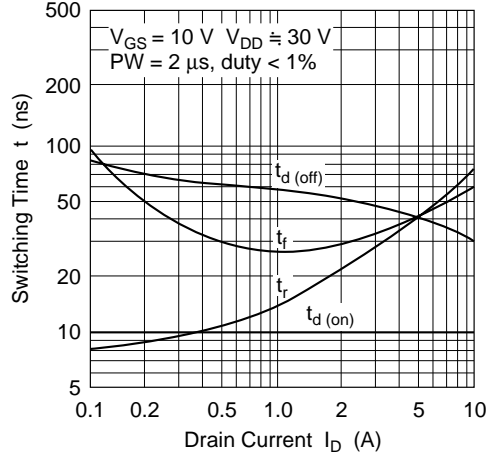
Typical Capacitance vs. Drain to Source Voltage

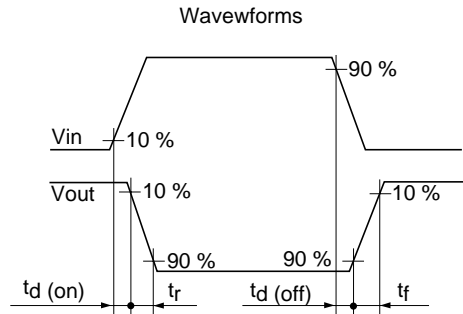
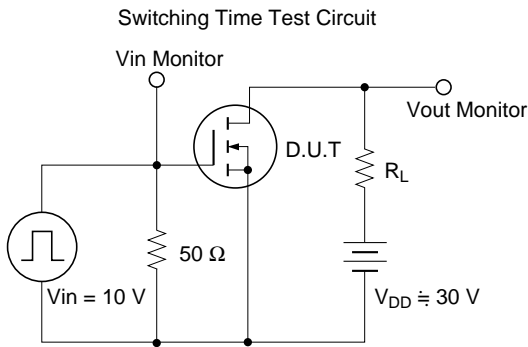
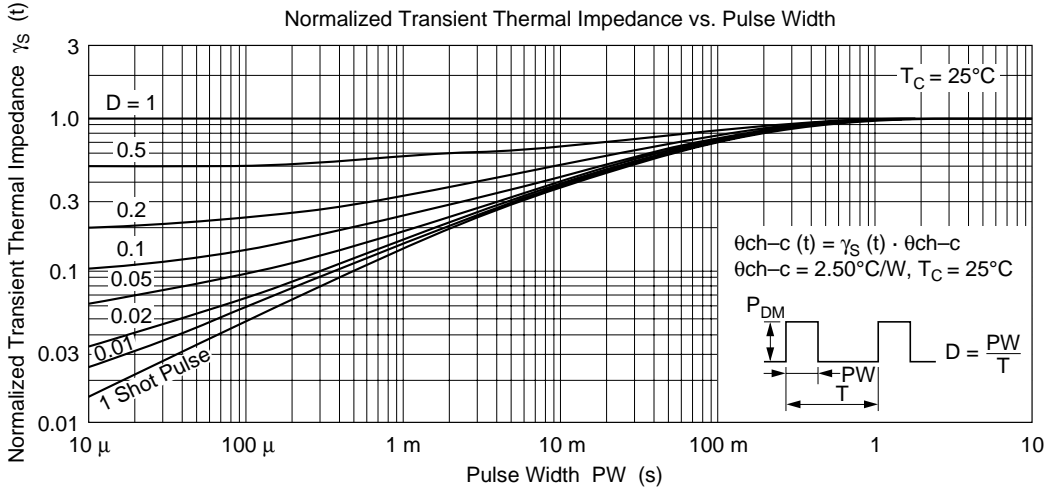
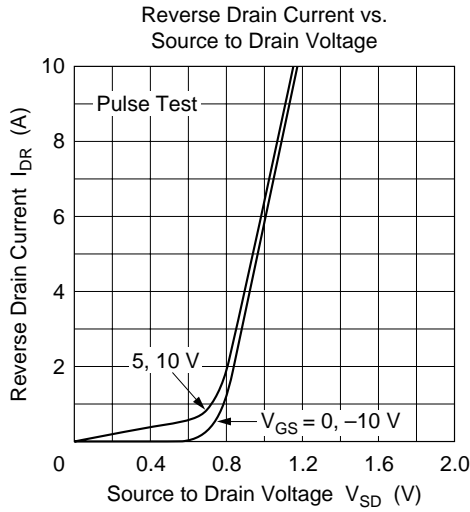


Dynamic Input Characteristics



Switching Characteristics

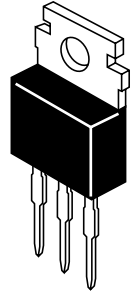
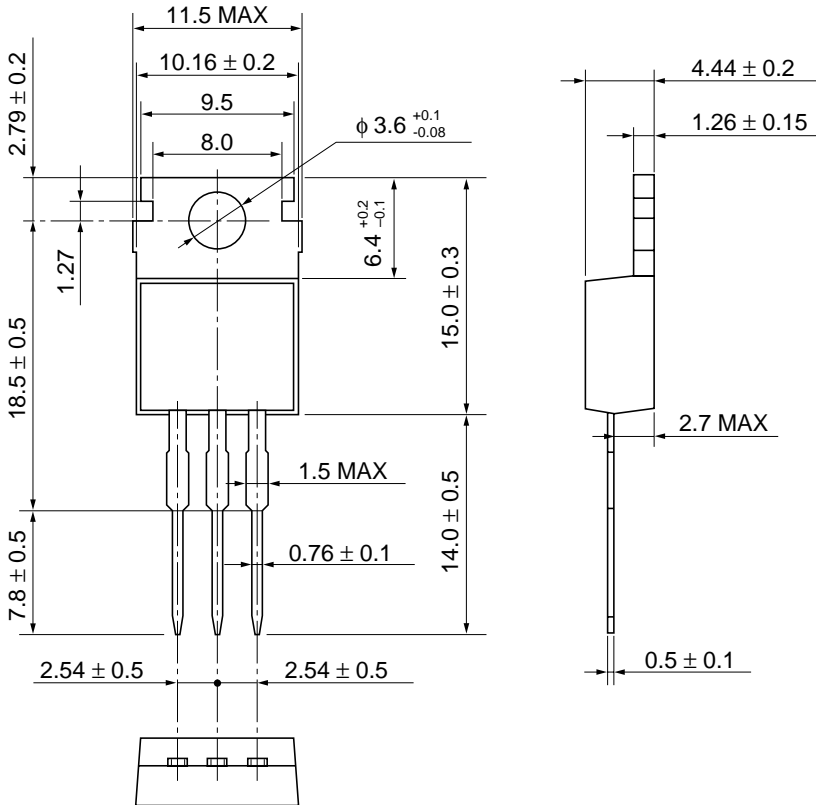




## Package Dimensions

As of January, 2001

Unit: mm



Hitachi Code	TO-220AB
JEDEC	Conforms
EIAJ	Conforms
Mass (reference value)	1.8 g

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