

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!

1. Renesas Technology Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage.

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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# 2SK2735(L), 2SK2735(S)

Silicon N Channel MOS FET  
High Speed Power Switching

**RENESAS**

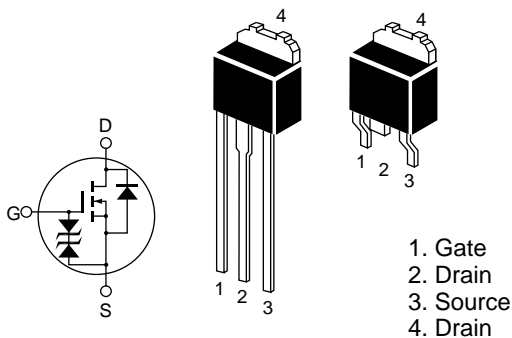
ADE-208-543 (Z)  
1st. Edition  
Sep. 1997

## Features

- Low on-resistance  
 $R_{DS} = 20 \text{ m}\Omega$  typ.
- High speed switching
- 4V gate drive device can be driven from 5V source

## Outline

DPAK-2



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

<b>Item</b>	<b>Symbol</b>	<b>Ratings</b>	<b>Unit</b>
Drain to source voltage	$V_{DSS}$	30	V
Gate to source voltage	$V_{GSS}$	±20	V
Drain current	$I_D$	20	A
Drain peak current	$I_{D(pulse)}^{*1}$	80	A
Body to drain diode reverse drain current	$I_{DR}$	20	A
Channel dissipation	$Pch^{*2}$	20	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  $T_c = 25^\circ C$

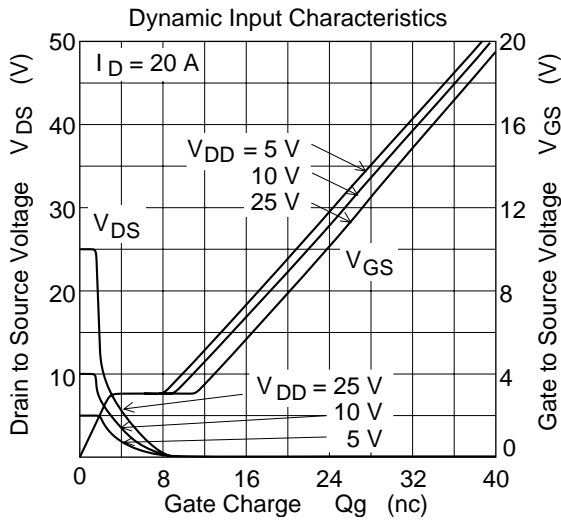
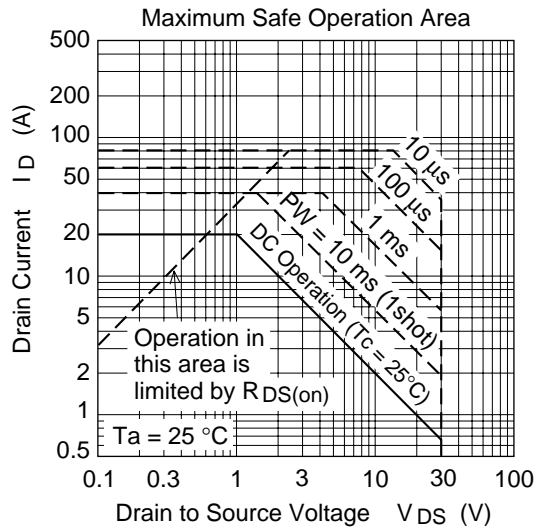
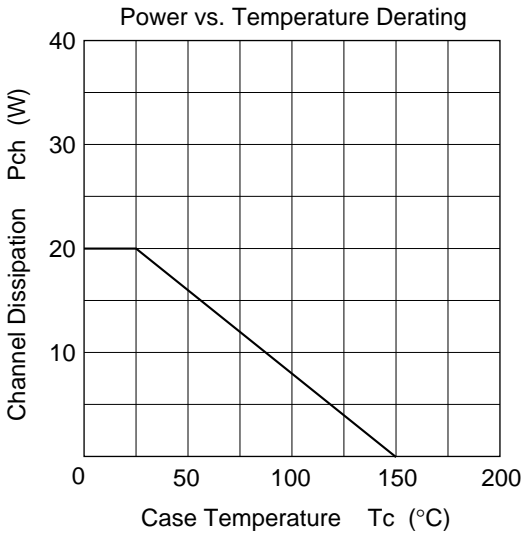
## Electrical Characteristics (Ta = 25°C)

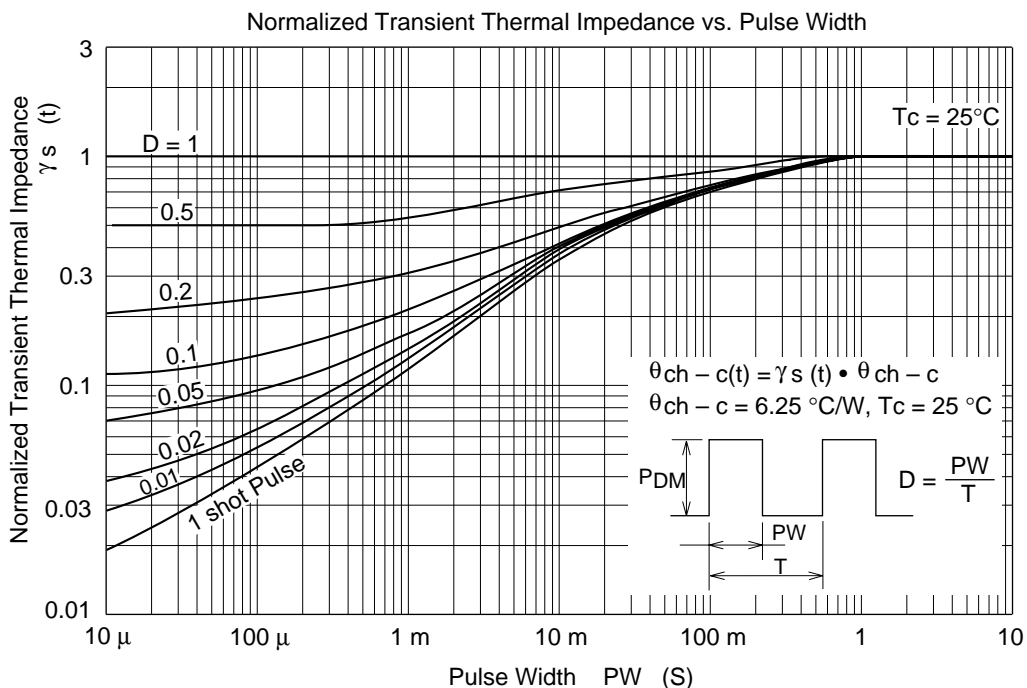
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	30	—	—	V	$I_D = 10\text{mA}$ , $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	—	—	V	$I_G = \pm 100\mu\text{A}$ , $V_{DS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	±10	μA	$V_{GS} = \pm 16\text{V}$ , $V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	10	μA	$V_{DS} = 30\text{V}$ , $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.0	—	2.0	V	$I_D = 1\text{mA}$ , $V_{DS} = 10\text{V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	20	28	mΩ	$I_D = 10\text{A}$ , $V_{GS} = 10\text{V}^{*1}$
	$R_{DS(on)}$	—	35	50	mΩ	$I_D = 10\text{A}$ , $V_{GS} = 4\text{V}^{*1}$
Forward transfer admittance	$ y_{fs} $	8	16	—	S	$I_D = 10\text{A}$ , $V_{DS} = 10\text{V}^{*1}$
Input capacitance	$C_{iss}$	—	750	—	pF	$V_{DS} = 10\text{V}$
Output capacitance	$C_{oss}$	—	520	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	$C_{rss}$	—	210	—	pF	$f = 1\text{MHz}$
Turn-on delay time	$t_{d(on)}$	—	16	—	ns	$I_D = 10\text{A}$ , $V_{GS} = 10\text{V}$
Rise time	$t_r$	—	225	—	ns	$R_L = 1\Omega$
Turn-off delay time	$t_{d(off)}$	—	85	—	ns	
Fall time	$t_f$	—	90	—	ns	
Body to drain diode forward voltage	$V_{DF}$	—	1.0	—	V	$I_F = 20\text{A}$ , $V_{GS} = 0$ $diF/dt = 50\text{A}/\mu\text{s}$
Body to drain diode reverse recovery time	$t_{rr}$	—	40	—	V	$I_F = 20\text{A}$ , $V_{GS} = 0$ $diF/dt = 50\text{A}/\mu\text{s}$

Note: 1. Pulse test

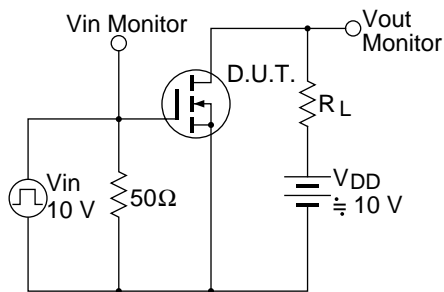
See characteristics curves of 2SK2684

Main Characteristics

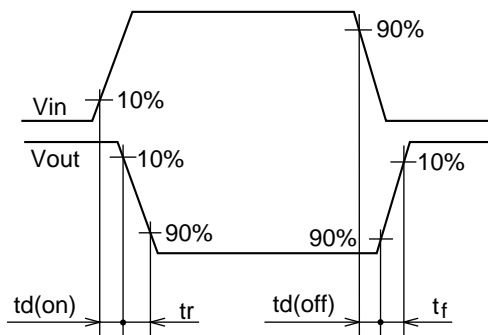




Switching Time Test Circuit



Waveform

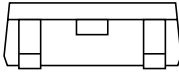
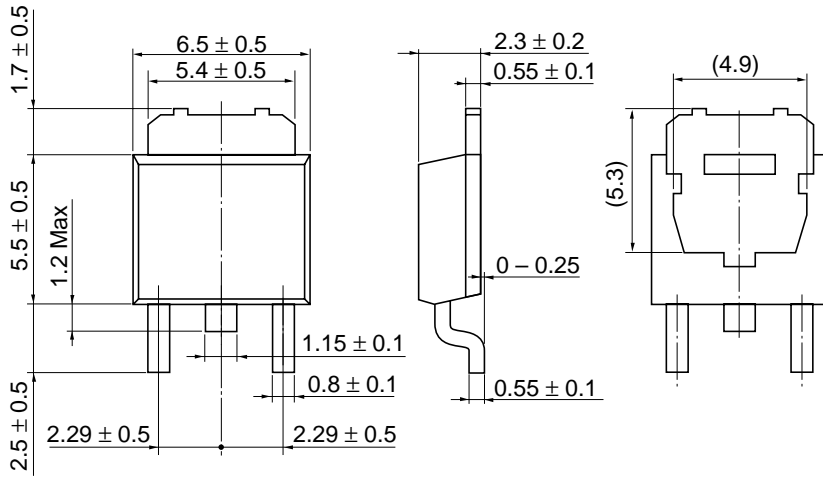






As of January, 2001

Unit: mm

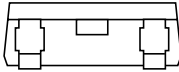
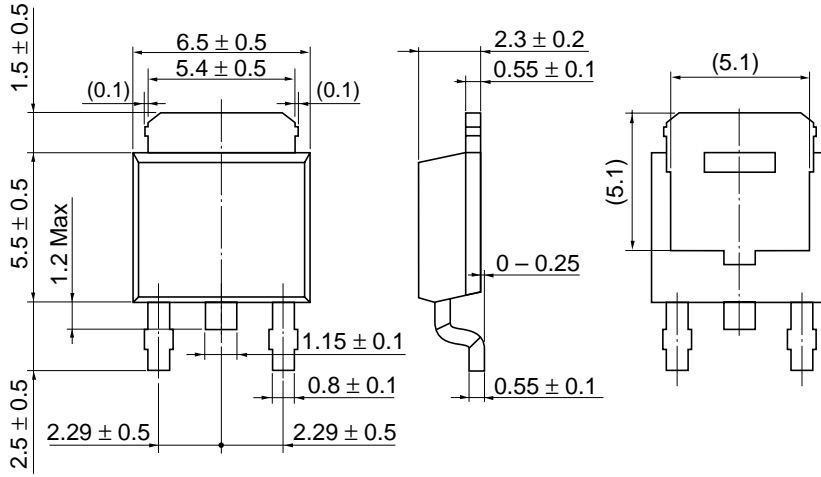


Hitachi Code	DPAK (S)-(1),(2)
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.28 g

# 2SK2735(L), 2SK2735(S)

As of January, 2001

Unit: mm



Hitachi Code	DPAK (S)-(3)
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.28 g

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