

# 2SJ242 (L), 2SJ242 (S)

Silicon P Channel MOS FET

HITACHI/(OPTOELECTRONICS)

## Application

High speed power switching

## Features

- Low on-resistance
- High speed switching
- Low drive current
- 4 V gate drive device --- can be driven from 5 V source
- Suitable for DC - DC convertor, motor drive, power switch, solenoid drive

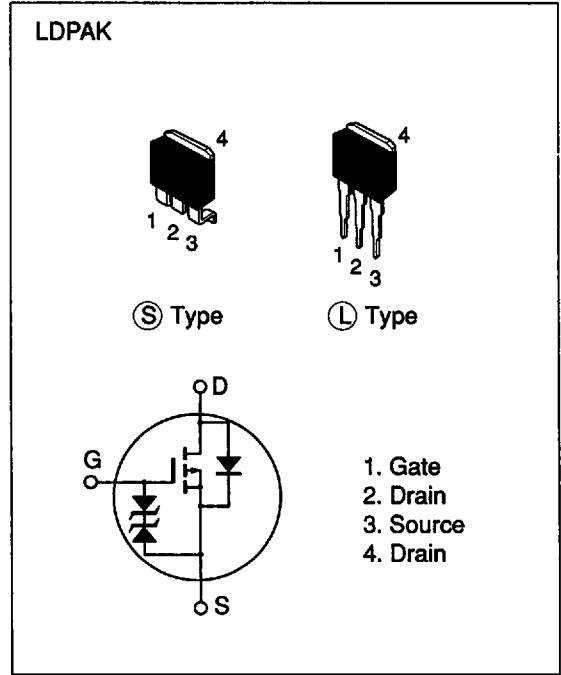


Table 1 Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V <sub>DSS</sub>	-60	V
Gate to source voltage	V <sub>GSS</sub>	±20	V
Drain current	I <sub>D</sub>	-30	A
Drain peak current	I <sub>D(pulse)</sub> *	-120	A
Body-drain diode reverse drain current	I <sub>DR</sub>	-30	A
Channel dissipation	P <sub>ch</sub> **	75	W
Channel temperature	T <sub>ch</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

\* PW ≤ 10 μs, duty cycle ≤ 1 %

\*\* Value at T<sub>c</sub> = 25 °C

Table 2 Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-60	—	—	V	$I_D = -10 \text{ mA}$ , $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	$\pm 20$	—	—	V	$I_G = \pm 100 \text{ }\mu\text{A}$ , $V_{DS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	$\pm 10$	$\mu\text{A}$	$V_{GS} = \pm 16 \text{ V}$ , $V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	-250	$\mu\text{A}$	$V_{DS} = -50 \text{ V}$ , $V_{GS} = 0$
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	$R_{DS(on)}$	—	0.045	0.06	$\Omega$	$I_D = -15 \text{ A}$ $V_{GS} = -10 \text{ V}^*$
		—	0.07	0.09		$I_D = -15 \text{ A}$ $V_{GS} = -4 \text{ V}^*$
Forward transfer admittance	$ y_{fs} $	12	20	—	S	$I_D = -15 \text{ A}$ $V_{DS} = -10 \text{ V}^*$
Input capacitance	$C_{iss}$	—	2400	—	pF	$V_{DS} = -10 \text{ V}$
Output capacitance	$C_{oss}$	—	1300	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	$C_{rss}$	—	340	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	20	—	ns	$I_D = -15 \text{ A}$
Rise time	$t_r$	—	175	—	ns	$V_{GS} = -10 \text{ V}$
Turn-off delay time	$t_{d(off)}$	—	460	—	ns	$R_L = 2 \text{ }\Omega$
Fall time	$t_f$	—	320	—	ns	
Body-drain diode forward voltage	$V_{DF}$	—	1.25	—	V	$I_F = -30 \text{ A}$ , $V_{GS} = 0$
Body-drain diode reverse recovery time	$t_{rr}$	—	240	—	ns	$I_F = -30 \text{ A}$ , $V_{GS} = 0$ , $di_F / dt = 50 \text{ A} / \mu\text{s}$

\* Pulse Test

See characteristic curves of 2SJ215.

HITACHI/(OPTOELECTRONICS)

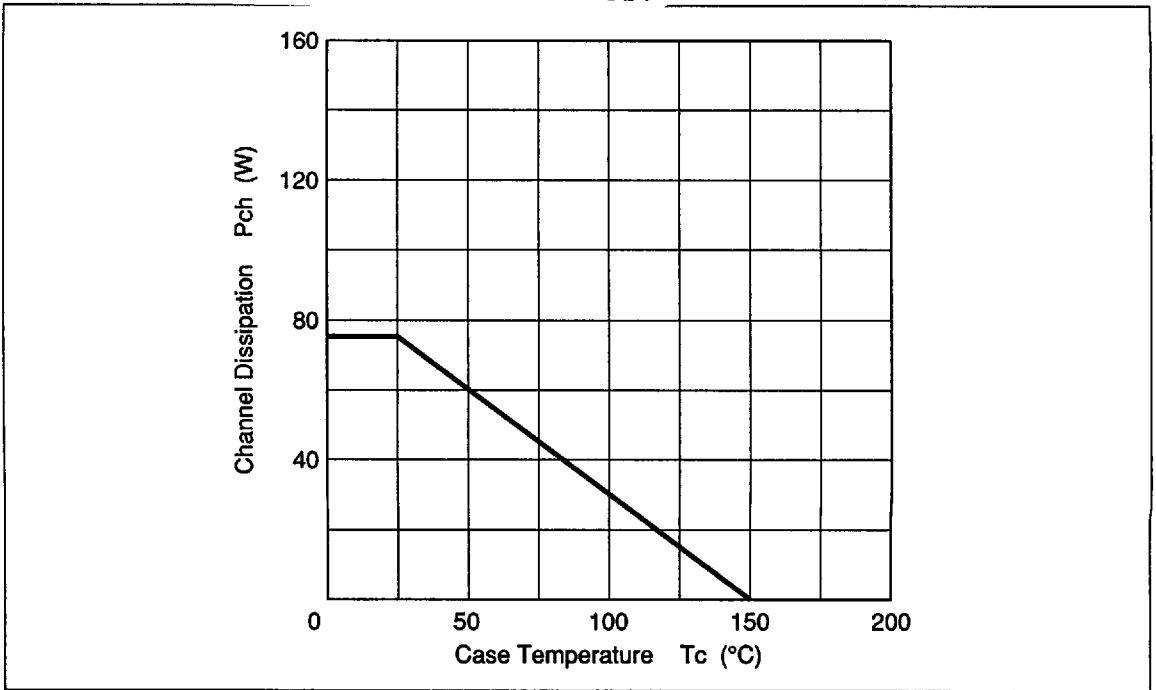


Figure 1 Power vs. Temperature Derating

Package Dimensions

Unit: mm

