

2SK3076(L),2SK3076(S)

Silicon N Channel MOS FET
High Speed Power Switching

HITACHI

ADE-208-656 (Z)

1st. Edition

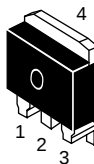
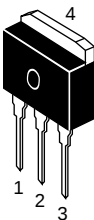
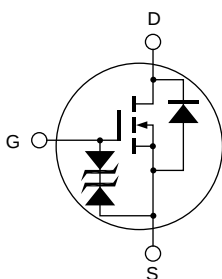
Jun 1998

Features

- Low on-resistance
- High speed switching
- Low drive current.
- Built-in fast recovery diode ($t_{rr}=120\text{ ns}$)

Outline

LDPAK



1. Gate
2. Drain
3. Source
4. Drain

2SK3076(L),2SK3076(S)

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V _{DSS}	500	V
Gate to source voltage	V _{GSS}	±30	V
Drain current	I _D	7	A
Drain peak current	I _{D(pulse)} ^{Note1}	28	A
Body-drain diode reverse drain current	I _{DR}	7	A
Channel dissipation	Pch ^{Note2}	60	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	−55 to +150	°C

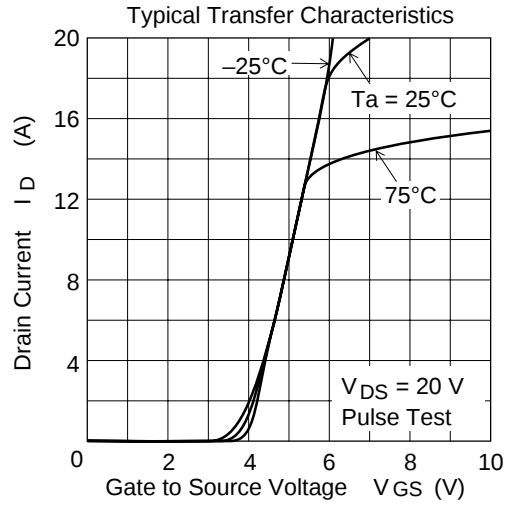
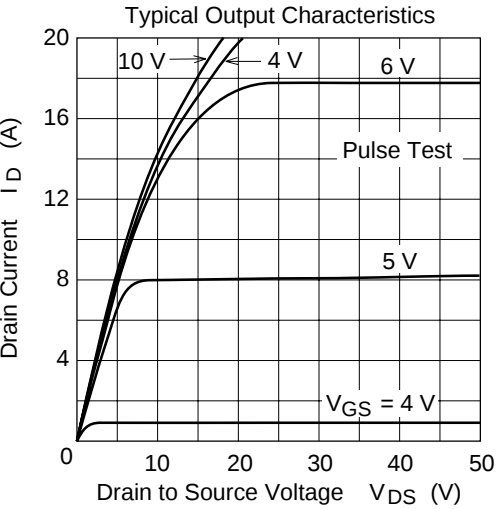
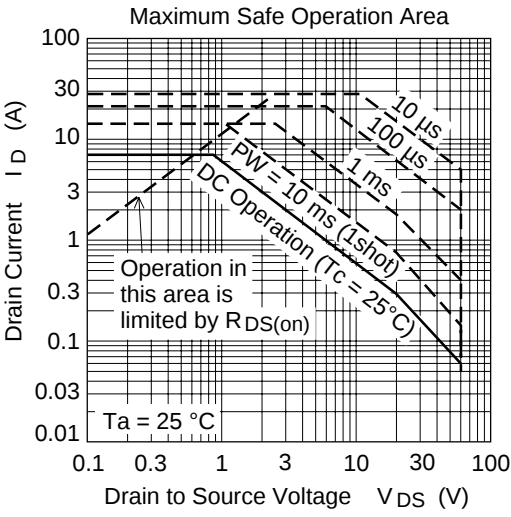
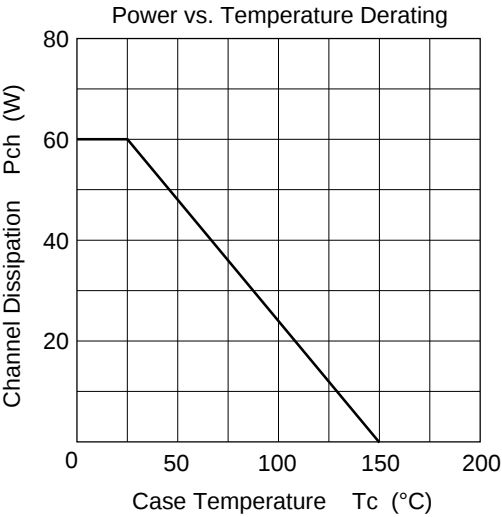
Note: 1. PW ≤ 10μs, duty cycle ≤ 1 %
2. Value at Tc = 25°C

Electrical Characteristics (Ta = 25°C)

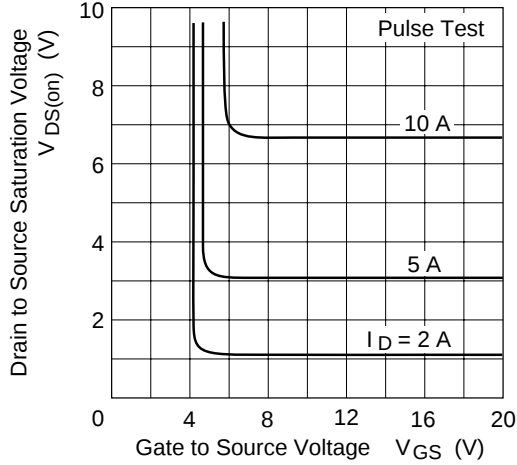
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V _{(BR)DSS}	500	—	—	V	I _D = 10mA, V _{GS} = 0
Gate to source breakdown voltage	V _{(BR)GSS}	±30	—	—	V	I _G = ±100μA, V _{DS} = 0
Gate to source leak current	I _{GSS}	—	—	±10	μA	V _{GS} = ±25V, V _{DS} = 0
Zero gate voltege drain current	I _{DSS}	—	—	250	μA	V _{DS} = 400 V, V _{GS} = 0
Gate to source cutoff voltage	V _{GS(off)}	2.0	—	3.0	V	I _D = 1mA, V _{DS} = 10V
Static drain to source on state resistance	R _{DS(on)}	—	0.7	0.9	Ω	I _D = 4A, V _{GS} = 10V ^{Note4}
Forward transfer admittance	y _{fs}	3.5	6.0	—	S	I _D = 4A, V _{DS} = 10V ^{Note4}
Input capacitance	Ciss	—	1100	—	pF	V _{DS} = 10V
Output capacitance	Coss	—	310	—	pF	V _{GS} = 0
Reverse transfer capacitance	Crss	—	50	—	pF	f = 1MHz
Turn-on delay time	t _{d(on)}	—	15	—	ns	I _D =4A, V _{GS} = 10V
Rise time	t _r	—	55	—	ns	R _L = 7.5Ω
Turn-off delay time	t _{d(off)}	—	100	—	ns	
Fall time	t _f	—	48	—	ns	
Body–drain diode forward voltage	V _{DF}	—	0.9	—	V	I _F = 7A, V _{GS} = 0
Body–drain diode reverse recovery time	t _{rr}	—	120	—	ns	I _F = 7A, V _{GS} = 0 diF/ dt =100A/μs

Note: 4. Pulse test

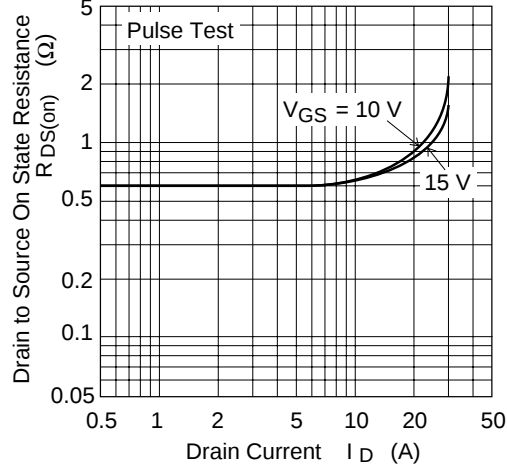
Main Characteristics



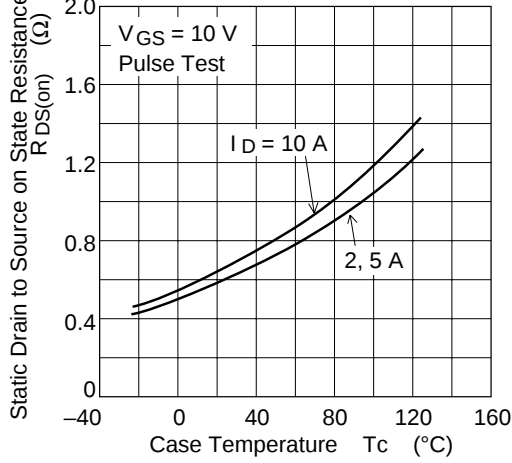
Drain to Source Saturation Voltage vs.
Gate to Source Voltage



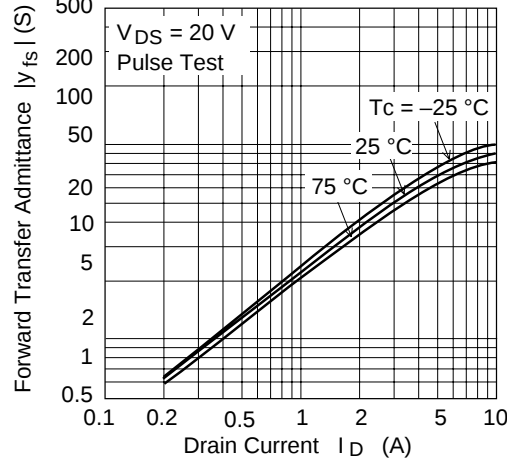
Static Drain to Source on State Resistance
vs. Drain Current

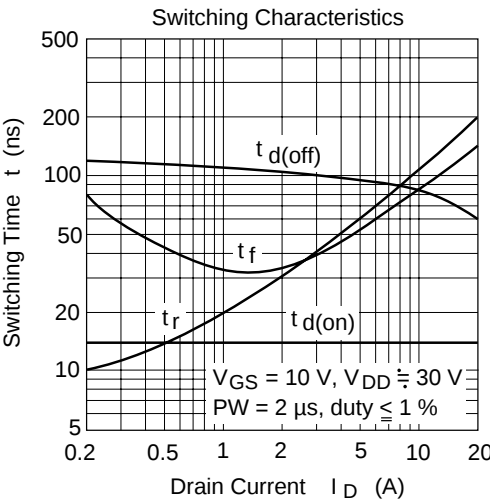
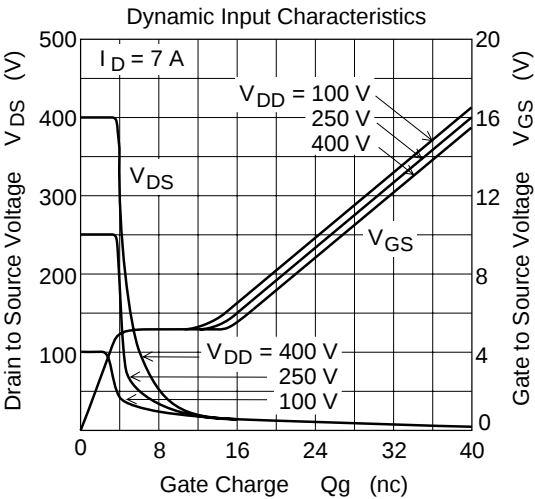
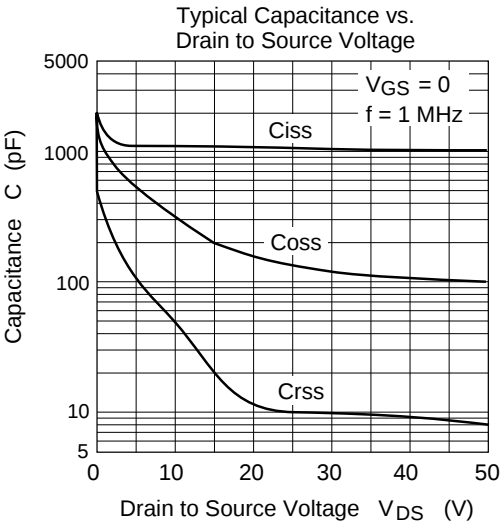
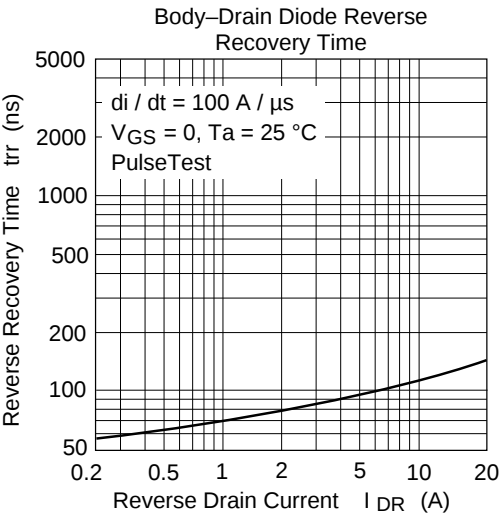


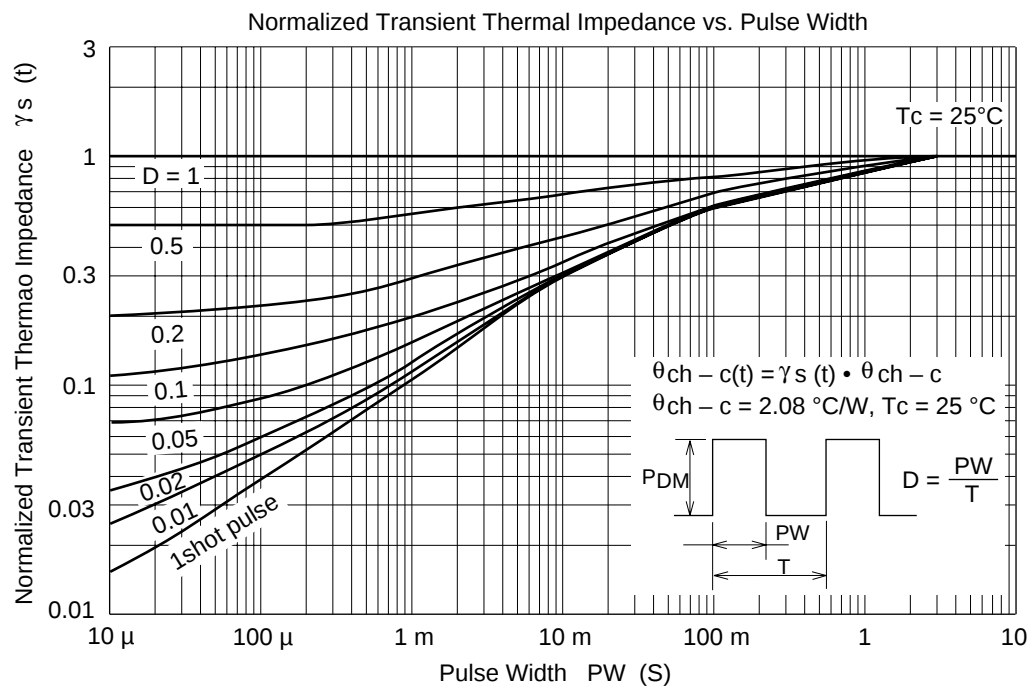
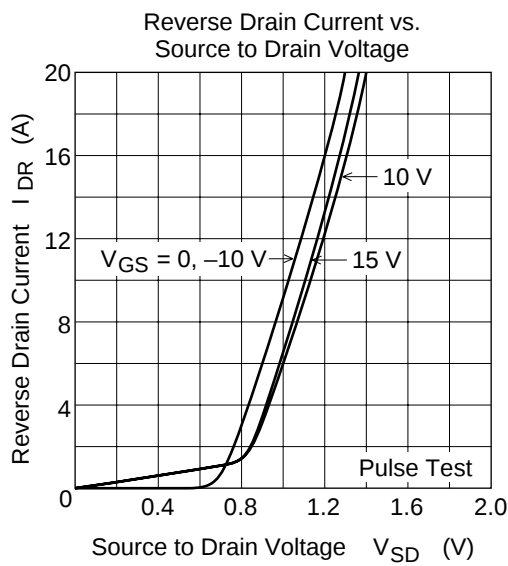
Static Drain to Source on State Resistance
vs. Temperature



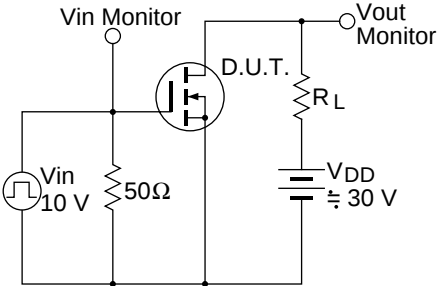
Forward Transfer Admittance vs.
Drain Current



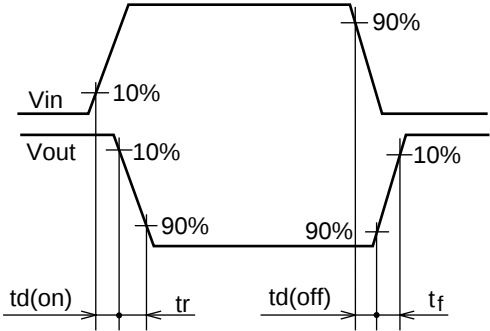




Switching Time Test Circuit

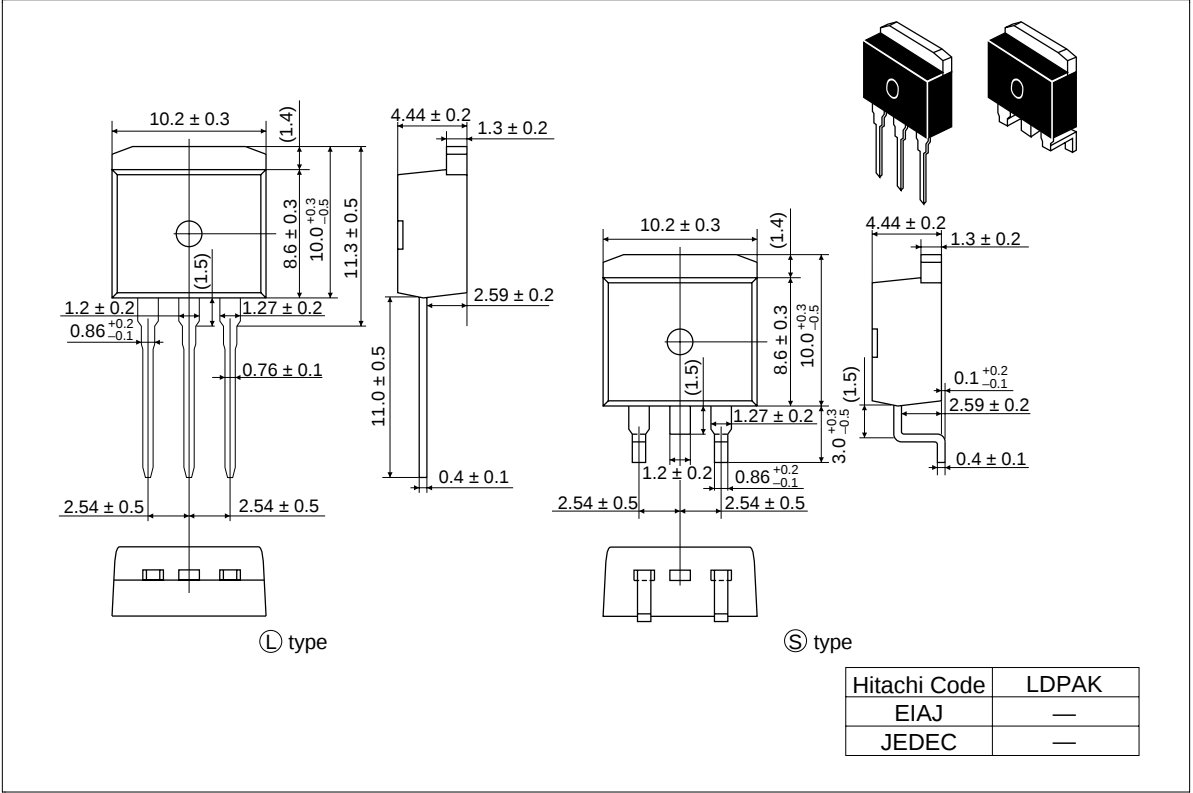


Waveform



Package Dimensions

Unit: mm



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