HAT2279N

Silicon N Channel Power MOS FET
Power Switching

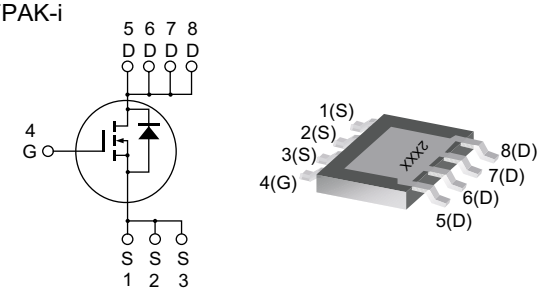
Preliminary
Rev.2.00
Jul.05.2005

Features

- High speed switching
- Capable of 4.5 V gate drive
- Low drive current
- High density mounting
- Low on-resistance
  $R_{DS(on)}$ = 9.8 mΩ typ. (at V_{GS} = 10 V)
- Lead Free

Outline

LFPAK-i



1, 2, 3	Source
4	Gate
5, 6, 7, 8	Drain

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	80	V
Gate to source voltage	V_{GSS}	±20	V
Drain current	I_D	30	A
Drain peak current	$I_{D(pulse)}$ Note1	120	A
Body-drain diode reverse drain current	I_{DR}	30	A
Avalanche current	I_{AP} Note 2	25	A
Avalanche energy	E_{AR} Note 2	83	mJ
Channel dissipation	Pch Note3	25	W
Channel to Case Thermal Resistance	θch-C	5	°C/W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

Notes: 1. PW ≤ 10 µs, duty cycle ≤ 1%
2. Value at Tch = 25°C, Rg ≥ 50 Ω
3. Tc = 25°C

Electrical Characteristics

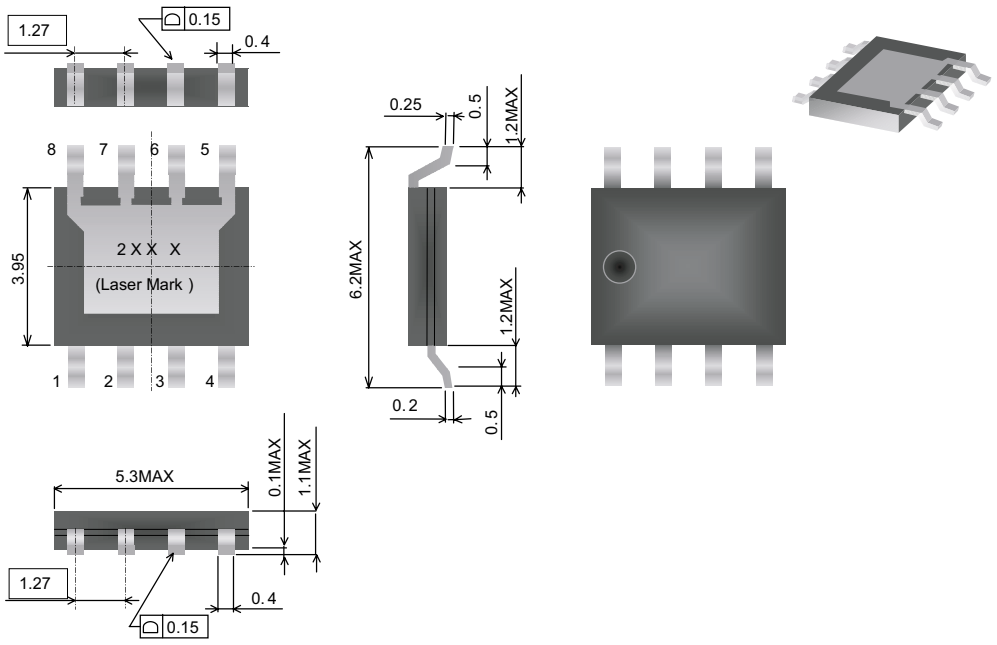
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	80	—	—	V	I_D = 10 mA, V_{GS} = 0
Gate to source leak current	I_{GSS}	—	—	± 0.5	µA	V_{GS} = ±20 V, V_{DS} = 0
Zero gate voltage drain current	I_{DSS}	—	—	1	µA	V_{DS} = 80 V, V_{GS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	0.8	—	2.3	V	V_{DS} = 10 V, I_D = 1 mA
Static drain to source on state resistance	$R_{DS(on)}$	—	9.8	12.3	mΩ	I_D = 15 A, V_{GS} = 10 V Note4
	$R_{DS(on)}$	—	11.3	15.3	mΩ	I_D = 15 A, V_{GS} = 4.5 V Note4
Forward transfer admittance	$\|y_{fs}\|$	42	70	—	S	I_D = 15 A, V_{DS} = 10 V Note4
Input capacitance	Ciss	—	3520	—	pF	V_{DS} = 10 V
Output capacitance	Coss	—	410	—	pF	V_{GS} = 0
Reverse transfer capacitance	Crss	—	160	—	pF	f = 1 MHz
Gate Resistance	Rg	—	0.5	—	Ω	
Total gate charge	Qg	—	60	—	nc	V_{DD} = 25 V
Gate to source charge	Qgs	—	9.5	—	nc	V_{GS} = 10 V
Gate to drain charge	Qgd	—	9.0	—	nc	I_D = 30 A
Turn-on delay time	$t_{d(on)}$	—	9.5	—	ns	V_{GS} = 10 V, I_D = 15 A
Rise time	t_r	—	14.5	—	ns	V_{DD} ≅ 30 V
Turn-off delay time	$t_{d(off)}$	—	56	—	ns	R_L = 2 Ω
Fall time	t_f	—	9.5	—	ns	Rg = 4.7 Ω
Body–drain diode forward voltage	V_{DF}	—	0.83	1.08	V	IF = 30 A, V_{GS} = 0 Note4
Body–drain diode reverse recovery time	t_{rr}	—	50	—	ns	IF = 30 A, V_{GS} = 0 diF/ dt = 100 A/ µs

Notes: 4. Pulse test

Package Dimensions

Unit: mm



Package Code	LFPAK-i
JEDEC	—
JEITA	—
Mass (reference value)	0.080 g