

HAT2265H

Silicon N Channel Power MOS FET Power Switching

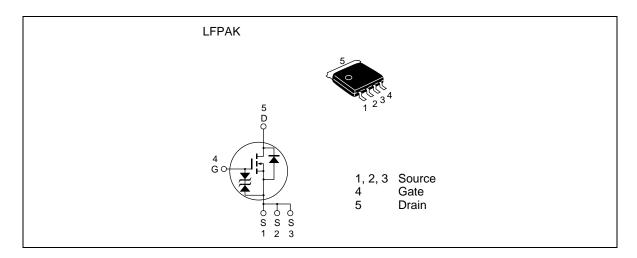
Rev.1.00 Jun.06.2005

Features

- High speed switching
- Capable of 4.5 V gate drive
- Low drive current
- High density mounting
- Low on-resistance

 $R_{DS(on)} = 2.5 \text{ m}\Omega \text{ typ. (at } V_{GS} = 10 \text{ V})$

Outline



Absolute Maximum Ratings

 $(Ta = 25^{\circ}C)$

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	30	V
Gate to source voltage	V _{GSS}	±20	V
Drain current	I_D	55	A
Drain peak current	I _{D(pulse)} Note1	220	A
Body-drain diode reverse drain current	I _{DR}	55	A
Avalanche current	I _{AP} Note 2	30	A
Avalanche energy	E _{AR} Note 2	90	mJ
Channel dissipation	Pch Note3	30	W
Channel to Case Thermal Resistance	θch-C	4.17	°C/W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

Notes: 1. PW \leq 10 μ s, duty cycle \leq 1%

2. Value at Tch = 25°C, Rg \geq 50 Ω

3. Tc = 25°C

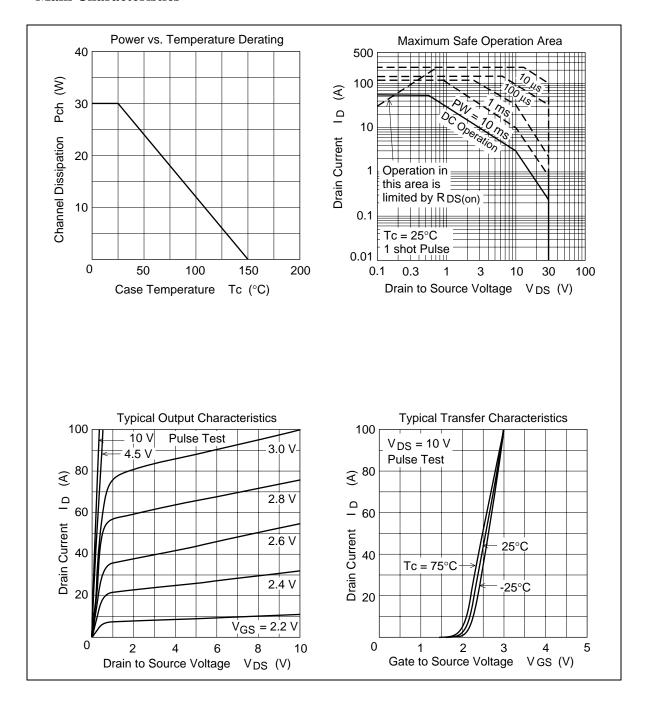
Electrical Characteristics

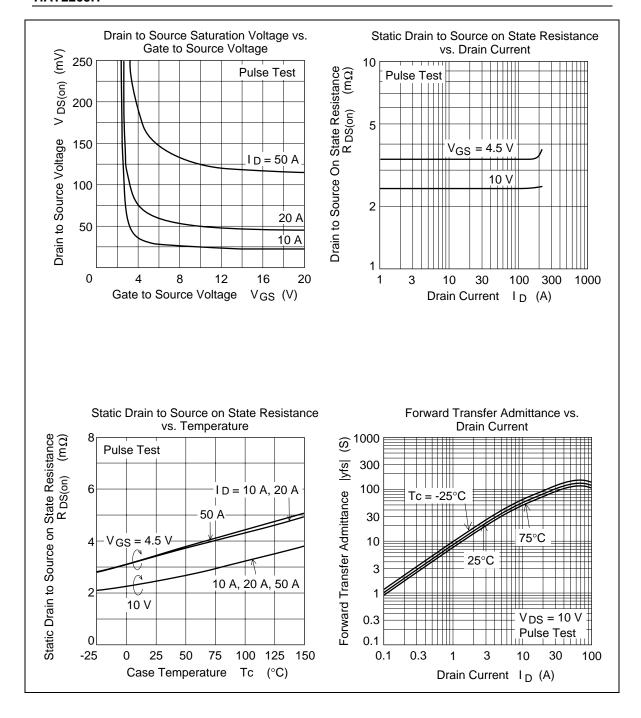
 $(Ta = 25^{\circ}C)$

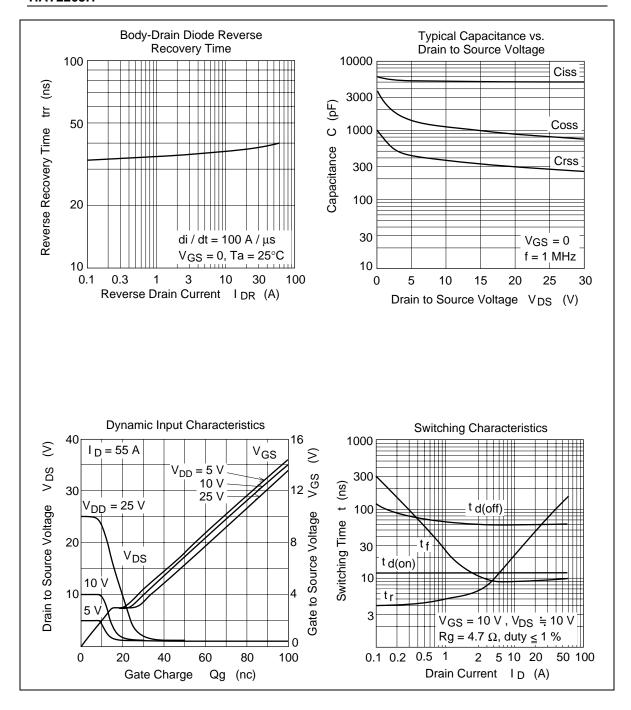
Item	Symbol	Min	Тур	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	30	_	_	V	$I_D = 10 \text{ mA}, V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	± 20	_	_	V	$I_G = \pm 100 \ \mu A, \ V_{DS} = 0$
Gate to source leak current	I _{GSS}		_	± 10	μΑ	$V_{GS} = \pm 16 \text{ V}, V_{DS} = 0$
Zero gate voltage drain current	I _{DSS}	_	_	1	μΑ	$V_{DS} = 30 \text{ V}, V_{GS} = 0$
Gate to source cutoff voltage	V _{GS(off)}	1.6	_	2.5	V	$V_{DS} = 10 \text{ V}, I_D = 1 \text{ mA}$
Static drain to source on state	R _{DS(on)}	_	2.5	3.3	mΩ	$I_D = 27.5 \text{ A}, V_{GS} = 10 \text{ V}^{Note4}$
resistance	R _{DS(on)}	_	3.4	5.3	mΩ	$I_D = 27.5 \text{ A}, V_{GS} = 4.5 \text{ V}^{\text{Note4}}$
Forward transfer admittance	y _{fs}	60	100	_	S	$I_D = 27.5 \text{ A}, V_{DS} = 10 \text{ V}^{\text{Note4}}$
Input capacitance	Ciss	_	5180	_	pF	V _{DS} = 10 V
Output capacitance	Coss	_	1200	_	pF	$V_{GS} = 0$
Reverse transfer capacitance	Crss	_	380	_	pF	f = 1 MHz
Gate Resistance	Rg	_	0.5	_	Ω	
Total gate charge	Qg	_	33	_	nc	V _{DD} = 10 V
Gate to source charge	Qgs		15	_	nc	$V_{GS} = 4.5 \text{ V}$
Gate to drain charge	Qgd	_	7.1	_	nc	$I_D = 55 \text{ A}$
Turn-on delay time	t _{d(on)}	_	13	_	ns	V _{GS} = 10 V, I _D = 27.5 A
Rise time	t _r	_	65	_	ns	V _{DD} ≅ 10 V
Turn-off delay time	t _{d(off)}	_	60	_	ns	$R_L = 0.36 \Omega$
Fall time	t _f	_	9.5	_	ns	$Rg = 4.7 \Omega$
Body-drain diode forward voltage	V_{DF}	_	0.81	1.06	V	$IF = 55 A, V_{GS} = 0^{Note4}$
Body-drain diode reverse recovery time	t _{rr}	_	40		ns	IF = 55 A, V _{GS} = 0 diF/ dt = 100 A/ μs

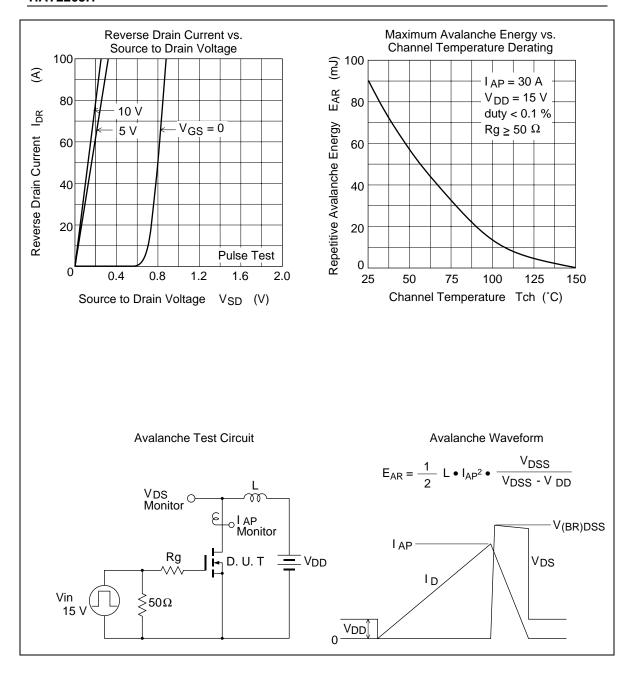
Notes: 4. Pulse test

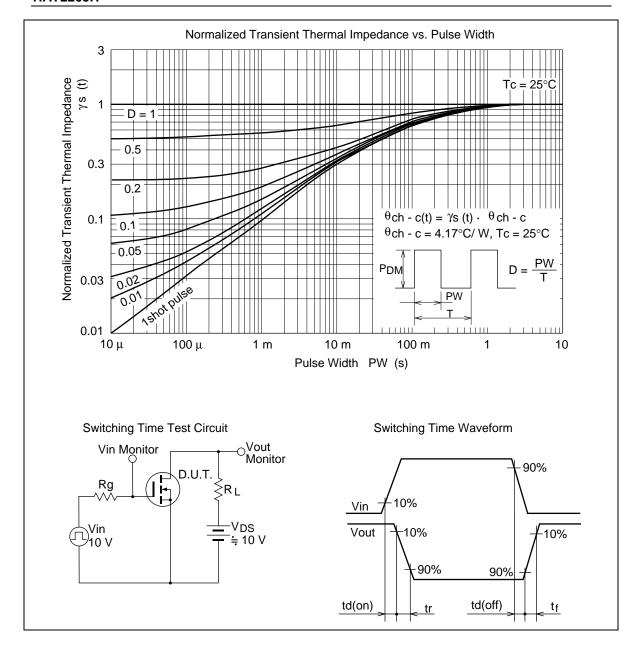
Main Characteristics



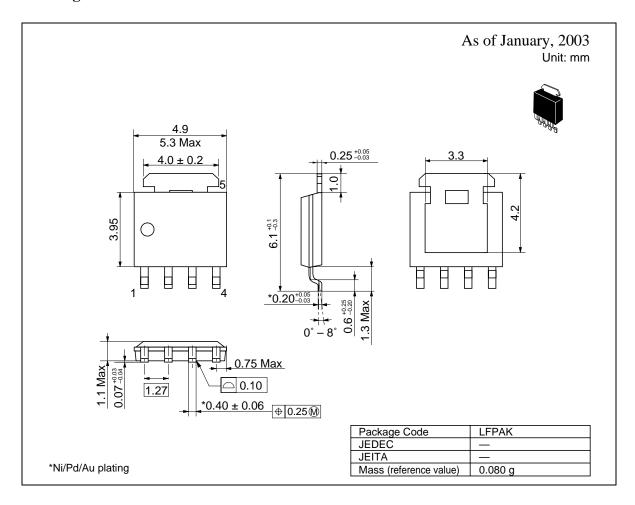








Package Dimensions



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