
6AM14

Silicon N-Channel/P-Channel Power MOS FET Array

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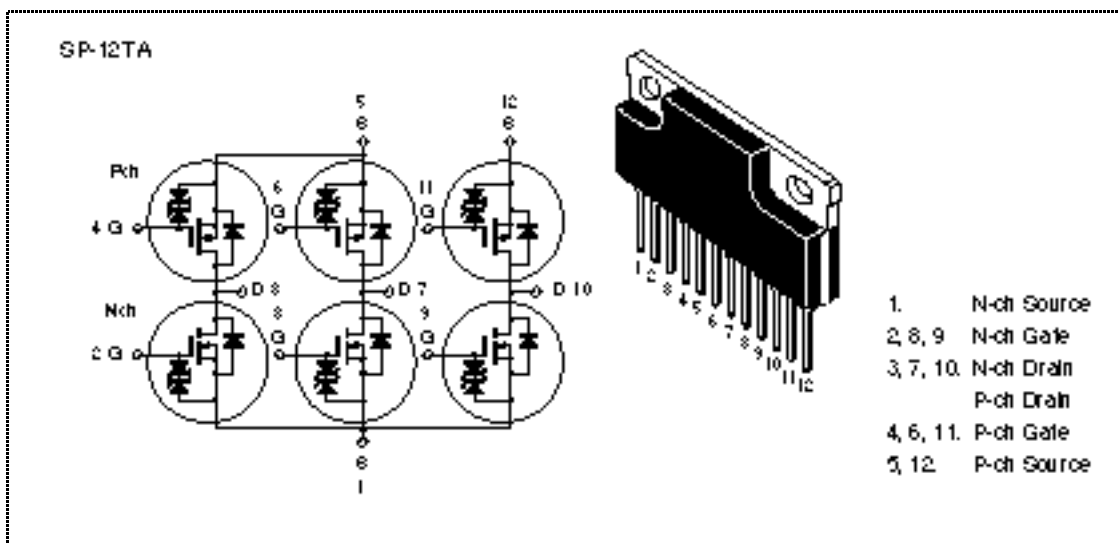
Application

High speed power switching

Features

- Low on-resistance
- Low drive current
- High speed switching
- High density mounting

Outline



6AM14

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings		Unit
		Nch	Pch	
Drain to source voltage	V_{DSS}	60	−60	V
Gate to source voltage	V_{GSS}	±20	±20	V
Drain current	I_D	7	−7	A
Drain peak current	$I_{D(pulse)}^{*1}$	28	−28	A
Reverse drain current	I_{DR}	7	−7	A
Channel dissipation	P_{ch}^{*2}	42		W
Channel dissipation	P_{ch}^{*2}	4.8		W
Channel temperature	Tch	150		°C
Storage temperature	Tstg	−55 to +150		°C

Notes: 1. PW £ 10 µs, duty cycle £ 1%

2. Value at 6 Drive operation

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Electrical Characteristics N Channel (Ta = 25°C)

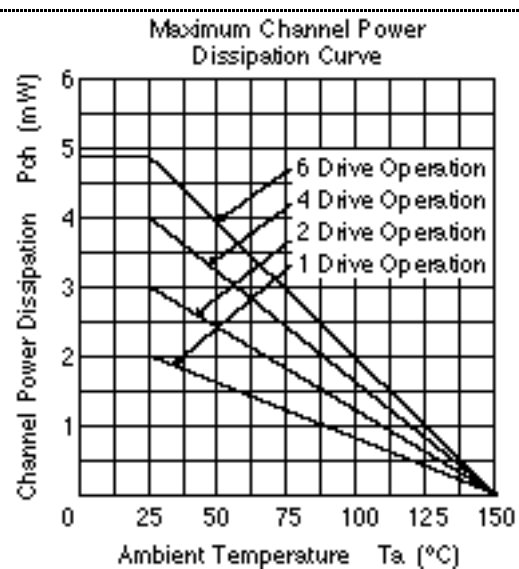
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DS}$	60	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GS}$	± 20	—	—	V	$I_G = \pm 100 \text{ }\mu\text{A}$, $V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 16 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	250	μA	$V_{DS} = 50 \text{ V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	0.5	—	1.5	V	$V_{DS} = 10 \text{ V}$, $I_D = 1 \text{ mA}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.14	0.2	W	$I_D = 4 \text{ A}$ $V_{GS} = 4 \text{ V}^{*1}$
			0.22	0.5	W	$I_D = 2 \text{ A}$ $V_{GS} = 2.5 \text{ V}^{*1}$
			—	—	—	—
Forward transfer admittance	$ y_{fs} $	4.0	6.5	—	S	$I_D = 4 \text{ A}$ $V_{DS} = 10 \text{ V}^{*1}$
Input capacitance	C_{iss}	—	500	—	pF	$V_{DS} = 10 \text{ V}$
Output capacitance	C_{oss}	—	240	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	30	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	15	—	ns	$V_{GS} = 10 \text{ V}$, $I_D = 4 \text{ A}$
Rise time	t_r	—	90	—	ns	$R_L = 7.5 \text{ }\Omega$
Turn-off delay time	$t_{d(off)}$	—	110	—	ns	
Fall time	t_f	—	250	—	ns	
Body to drain diode forward voltage	V_{DF}	—	1.0	—	V	$I_F = 7 \text{ A}$, $V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	170	—	ns	$I_F = 7 \text{ A}$, $V_{GS} = 0$ $di_F/dt = 50 \text{ A}/\mu\text{s}$

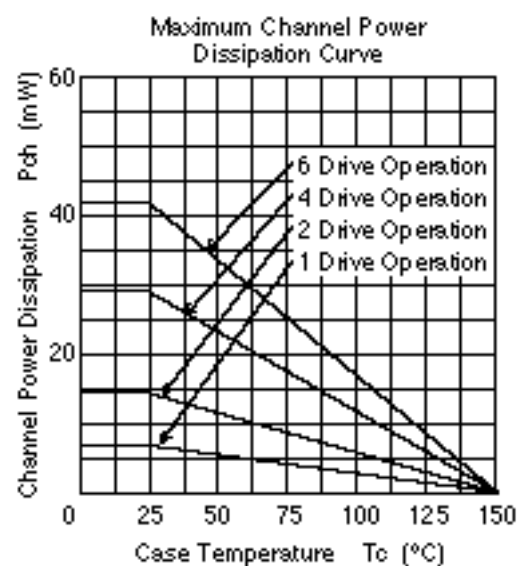
Note: 1. Pulse Test

Electrical Characteristics P Channel (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DS}$	-60	—	—	V	$I_D = -10 \text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GS}$	± 20	—	—	V	$I_G = \pm 100 \text{ }\mu\text{A}$, $V_{DS} = 0$
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}	—	—	-250	μA	$V_{DS} = -50 \text{ V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	-0.5	—	-1.5	V	$V_{DS} = -10 \text{ V}$, $I_D = -1 \text{ mA}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.12	0.16	W	$I_D = -4 \text{ A}$ $V_{GS} = -4 \text{ V}^{*1}$
			0.16	0.3	W	$I_D = -2 \text{ A}$ $V_{GS} = -2.5 \text{ V}^{*1}$
			—	—	—	—
Forward transfer admittance	$ y_{fs} $	5.0	8.0	—	S	$I_D = -4 \text{ A}$ $V_{DS} = -10 \text{ V}^{*1}$
Input capacitance	C_{iss}	—	1450	—	pF	$V_{DS} = -10 \text{ V}$
Output capacitance	C_{oss}	—	590	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	120	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	15	—	ns	$V_{GS} = -10 \text{ V}$, $I_D = -4 \text{ A}$
Rise time	t_r	—	75	—	ns	$R_L = 7.5 \text{ }\Omega$
Turn-off delay time	$t_{d(off)}$	—	240	—	ns	
Fall time	t_f	—	180	—	ns	
Body to drain diode forward voltage	V_{DF}	—	-1.0	—	V	$I_F = -7 \text{ A}$, $V_{GS} = 0$
Body to drain diode reverse recovery time	t_{rr}	—	210	—	ns	$I_F = -7 \text{ A}$, $V_{GS} = 0$ $di_F/dt = 50 \text{ A}/\mu\text{s}$

Note: 1. Pulse Test

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