

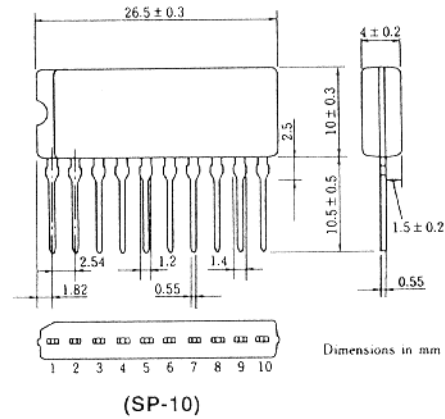
4AK21

SILICON N-CHANNEL POWER MOS FET ARRAY

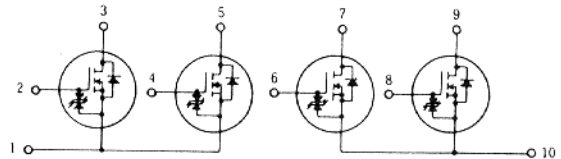
HIGH SPEED POWER SWITCHING

■ FEATURES

- Low On-Resistance
 - $R_{DS(on)} \leq 0.09 \Omega, V_{GS} = 10 \text{ V}, I_D = 4 \text{ A}$
 - $R_{DS(on)} \leq 0.12 \Omega, V_{GS} = 4 \text{ V}, I_D = 4 \text{ A}$
- Capable of 4 V Gate Drive
- Low Drive Current
- High Speed Switching
- High Density Mounting
- Suitable for Motor Driver, Solenoid Driver and Lamp Driver
- Discrete Packaged Devices of Same Die: 2SK1302, 2SK1307



■ EQUIVALENT CIRCUIT



■ ABSOLUTE MAXIMUM RATINGS (Ta = 25°C) (1Unit)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current	I_D	8	A
Drain Peak Current	$I_{D(pk)}$ *	32	A
Body-Drain Diode	I_{DR}	8	A
Reverse Drain Current			
Channel Dissipation	$P_{ch}(Tc=25^\circ\text{C})^{**}$	28	W
Channel Dissipation	P_{ch}^{**}	4	W
Channel Temperature	T_{ch}	150	°C
Storage Temperature	T_{stg}	-55~+150	°C

* $PW \leq 10 \mu\text{s}$, duty cycle $\leq 1\%$

** 4 Devices Operation

■ PIN CONNECTION

- 2, 4, 6, 8 ; Gate
- 3, 5, 7, 9 ; Drain
- 1, 10 ; Source

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■ELECTRICAL CHARACTERISTICS (Ta = 25°C) (1Unit)

Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 10\text{mA}, V_{GS} = 0$	100	—	—	V
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	$I_G = \pm 100\ \mu\text{A}, V_{DS} = 0$	± 20	—	—	V
Gate-Source Leak Current	I_{GSS}	$V_{GS} = \pm 16\text{V}, V_{DS} = 0$	—	—	± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 80\text{V}, V_{GS} = 0$	—	—	250	μA
Gate-Source Cutoff Voltage	$V_{GS(off)}$	$I_D = 1\text{mA}, V_{DS} = 10\text{V}$	1.0	—	2.0	V
Static Drain-Source on State Resistance	$R_{DS(on)}$	$I_D = 4\text{A}, V_{GS} = 10\text{V}^*$	—	0.07	0.09	Ω
		$I_D = 4\text{A}, V_{GS} = 4\text{V}^*$	—	0.09	0.125	Ω
Forward Transfer Admittance	$ y_{fs} $	$I_D = 4\text{A}, V_{DS} = 10\text{V}^*$	6.0	10.0	—	S
Input Capacitance	C_{iss}	$V_{DS} = 10\text{V}, V_{GS} = 0, f = 1\text{MHz}$	—	1300	—	pF
Output Capacitance	C_{oss}		—	540	—	pF
Reverse Transfer Capacitance	C_{rss}		—	160	—	pF
Turn-On Delay Time	$t_{d(on)}$	$I_D = 4\text{A}, V_{GS} = 10\text{V}, R_L = 7.5\ \Omega$	—	12	—	ns
Rise Time	t_r		—	60	—	ns
Turn-Off Delay Time	$t_{d(off)}$		—	320	—	ns
Fall Time	t_f		—	120	—	ns
Body-Drain Diode Forward Voltage	V_{DF}	$I_F = 8\text{A}, V_{GS} = 0$	—	1.0	—	V
Body-Drain Diode Reverse Recovery Time	t_{rr}	$I_F = 8\text{A}, V_{GS} = 0, di_F/dt = 50\text{A}/\mu\text{s}$	—	200	—	ns

* Pulse Test

■ See characteristic curves of 2SK1302

