

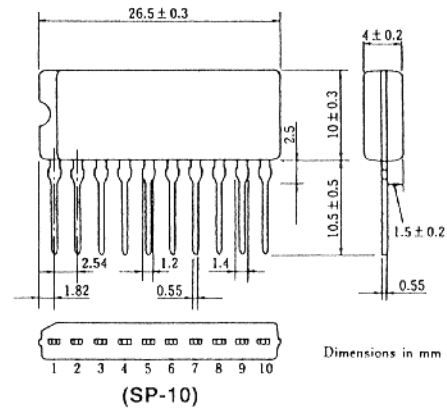
## 4AK20

### SILICON N-CHANNEL POWER MOS FET ARRAY

#### HIGH SPEED POWER SWITCHING

##### ■ FEATURES

- Low On-Resistance
  - $R_{DS(on)} \leq 0.25 \Omega, V_{GS} = 10 V, I_D = 2.5 A$
  - $R_{DS(on)} \leq 0.35 \Omega, V_{GS} = 4 V, I_D = 2.5 A$
- 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: 2SK1300, 2SK1305



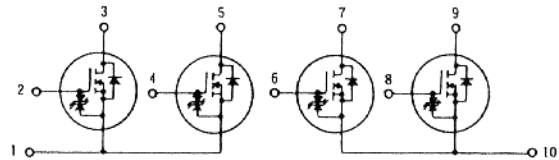
##### ■ ABSOLUTE MAXIMUM RATINGS (Ta = 25°C) (1Unit)

Item	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DSS}$	100	V
Gate-Source Voltage	$V_{GSS}$	±20	V
Drain Current	$I_D$	5	A
Drain Peak Current	$I_{D(pulse)}$ *	20	A
Body-Drain Diode	$I_{DR}$	5	A
Reverse Drain Current			
Channel Dissipation	$P_{ch}(T_c=25^\circ C)$ **	28	W
Channel Dissipation	$P_{ch}$ **	4	W
Channel Temperature	$T_{ch}$	150	°C
Storage Temperature	$T_{stg}$	-55 ~ +150	°C

\*PW ≤ 10 μs, duty cycle ≤ 1%

\*\*4 Devices Operation

##### ■ EQUIVALENT CIRCUIT



##### ■ PIN CONNECTION

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

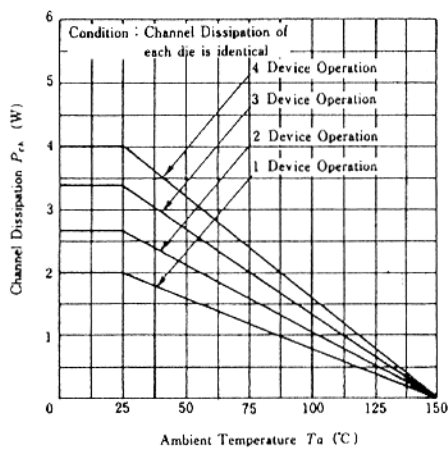
## ■ ELECTRICAL CHARACTERISTICS (Ta = 25°C) (1Unit)

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	$V_{(BR)GSS}$	$I_G = \pm 100\ \mu\text{A}, V_{DS} = 0$	$\pm 20$	—	—	V
Gate-Source Leak Current	$I_{GSS}$	$V_{GS} = \pm 16\text{V}, V_{DS} = 0$	—	—	$\pm 10$	$\mu\text{A}$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 80\text{V}, V_{GS} = 0$	—	—	250	$\mu\text{A}$
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	$R_{DS(on)}$	$I_D = 2.5\text{A}, V_{GS} = 10\text{V}^*$	—	0.25	0.25	$\Omega$
		$I_D = 2.5\text{A}, V_{GS} = 4\text{V}^*$	—	0.25	0.35	$\Omega$
Forward Transfer Admittance	$ y_{fs} $	$I_D = 2.5\text{A}, V_{DS} = 10\text{V}^*$	3.0	5.0	—	S
Input Capacitance	$C_{iss}$	$V_{DS} = 10\text{V}, V_{GS} = 0, f = 1\text{MHz}$	—	525	—	pF
Output Capacitance	$C_{oss}$		—	205	—	pF
Reverse Transfer Capacitance	$C_{rss}$		—	60	—	pF
Turn-On Delay Time	$t_{d(on)}$		$I_D = 2.5\text{A}, V_{GS} = 10\text{V}, R_L = 12\ \Omega$	—	5	—
Rise Time	$t_r$	—		30	—	ns
Turn-Off Delay Time	$t_{d(off)}$	—		180	—	ns
Fall Time	$t_f$	—		65	—	ns
Body-Drain Diode Forward Voltage	$V_{DF}$	$I_F = 5\text{A}, V_{GS} = 0$		—	1.0	—
Body-Drain Diode Reverse Recovery Time	$t_r$	$I_F = 5\text{A}, V_{GS} = 0, di_F/dt = 50\text{A}/\mu\text{s}$	—	170	—	ns

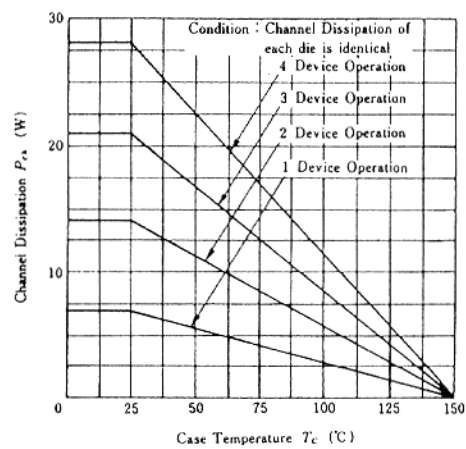
\* Pulse Test

■ See characteristic curves of 2SK1300

MAXIMUM CHANNEL DISSIPATION CURVE



MAXIMUM CHANNEL DISSIPATION CURVE



4AK20

