

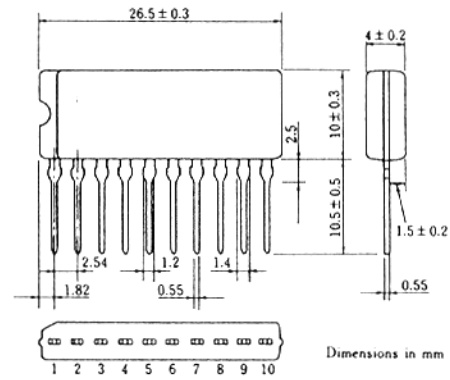
4AK16

SILICON N-CHANNEL POWER MOS FET ARRAY

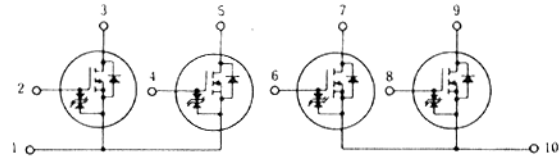
HIGH SPEED POWER SWITCHING

■ FEATURES

- Low On-Resistance
 - $R_{DS(on)} \leq 0.18 \Omega, V_{GS} = 10 V, I_D = 5 A$
 - $R_{DS(on)} \leq 0.25 \Omega, V_{GS} = 4 V, I_D = 5 A$
- 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: 2SK970, 2SK1093
2SK974 (L), 2SK974 (S)



■ EQUIVALENT CIRCUIT



■ ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ C$) (1Unit)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	60	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current	I_D	5	A
Drain Peak Current	$I_D(\text{pulse})^*$	20	A
Body-Drain Diode Reverse Drain Current	I_{DR}	5	A
Channel Dissipation	$P_{ch}(T_c = 25^\circ C)^{**}$	28	W
Channel Dissipation	P_{ch}^{**}	4	W
Channel Temperature	T_{ch}	150	$^\circ C$
Storage Temperature	T_{stg}	$-55 \sim +150$	$^\circ C$

* $PW \leq 10 \mu s$, 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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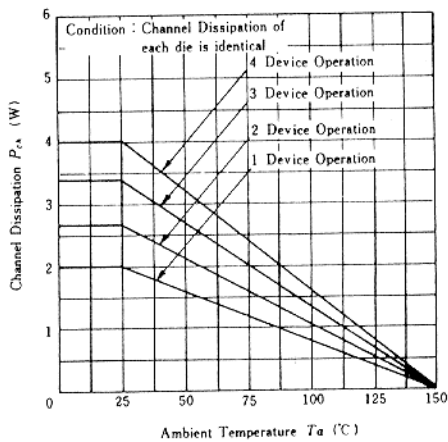
■ ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)(1Unit)

Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 10\text{mA}, V_{GS} = 0$	60	—	—	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 Currnt	I_{DSS}	$V_{DS} = 50\text{V}, V_{GS} = 0$	—	—	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	$R_{DS(on)}$	$I_D = 5\text{A}, V_{GS} = 10\text{V}^*$	—	0.12	0.18	Ω
		$I_D = 5\text{A}, V_{GS} = 4\text{V}^*$	—	0.17	0.25	Ω
Forward Transfer Admittance	$ y_{fs} $	$I_D = 5\text{A}, V_{DS} = 10\text{V}^*$	3.5	6.0	—	S
Input Capacitance	C_{iss}	$V_{DS} = 10\text{V}, V_{GS} = 0,$ $f = 1\text{MHz}$	—	400	—	pF
Output Capacitance	C_{oss}		—	220	—	pF
Reverse Transfer Capacitance	C_{rss}		—	60	—	pF
Turn-On Delay Time	$t_{d(on)}$		—	5	—	ns
Rise Time	t_r	$I_D = 5\text{A}, V_{GS} = 10\text{V},$ $R_L = 6\Omega$	—	55	—	ns
Turn-off Delay Time	$t_{d(off)}$		—	140	—	ns
Fall Time	t_f		—	90	—	ns
Body-Drain Diode Forward Voltage	V_{DF}	$I_F = 5\text{A}, V_{GS} = 0$	—	1.0	—	V
Body-Drain Doide Reverse Recovery Time	t_{rr}	$I_F = 5\text{A}, V_{GS} = 0,$ $di_F/dt = 50\text{A}/\mu\text{s}$	—	100	—	ns

* Pulse Test

■ See characteristic curves of 2SK970

MAXIMUM CHANNEL DISSIPATION CURVE



MAXIMUM CHANNEL DISSIPATION CURVE

