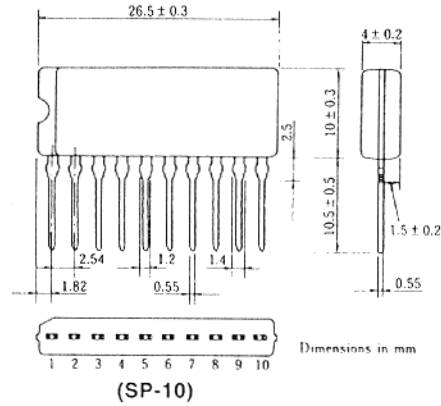


## 4AK17

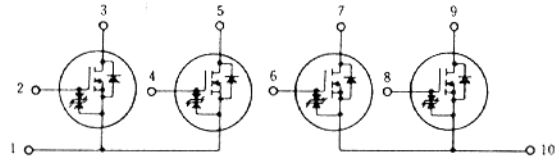
### SILICON N-CHANNEL POWER MOS FET ARRAY HIGH SPEED POWER SWITCHING

#### ■ FEATURES

- Low On-Resistance
  - $R_{DS(on)} \leq 0.045 \Omega, V_{GS} = 10 \text{ V}, I_D = 10 \text{ A}$
  - $R_{DS(on)} \leq 0.065 \Omega, V_{GS} = 4 \text{ V}, I_D = 10 \text{ A}$
- Capable of 4 V Gate Drive
- Low Drive Current
- High Speed Switching
- High Density Mousing
- Suitable for Motor Driver, Solenoid Driver and Lamp Driver
- Discrete Packaged Devices of Same Die: 2SK972, 2SK1095



#### ■ EQUIVALENT CIRCUIT



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

Item	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current	$I_D$	10	A
Drain Peak Current	$I_{D(pulse)}$ *	40	A
Body-Drain Diode Reverse Drain Current	$I_{DR}$	10	A
Channel Dissipation	$P_{ch}(T_c = 25^\circ\text{C})$ **	28	W
Channel Dissipation	$P_{ch}$ **	4	W
Channel Temperature	$T_{ch}$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	$-55 \sim +150$	$^\circ\text{C}$

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

\*\* 4 Devices Operation

#### ■ PIN OUTS

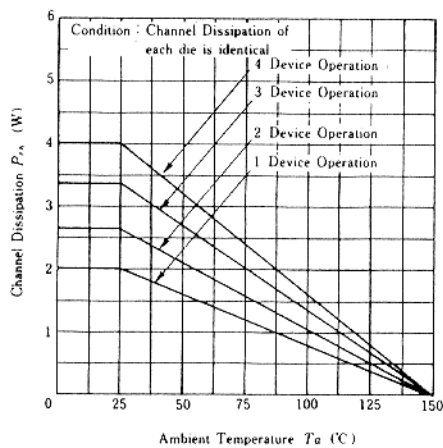
- 2, 4, 6, 8; Gate
- 3, 5, 7, 9; Drain
- 1, 10; Source

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

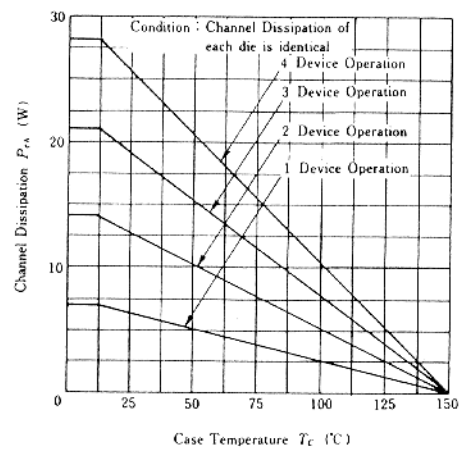
Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{\text{BRDSS}}$	$I_D = 10\text{mA}, V_{\text{GS}} = 0$	60	—	—	V
Gate-Source Breakdown Voltage	$V_{\text{BRGSS}}$	$I_G = \pm 100\mu\text{A}, V_{\text{DS}} = 0$	$\pm 20$	—	—	V
Gate-Source Leak Current	$I_{\text{GSS}}$	$V_{\text{GS}} = \pm 16\text{V}, V_{\text{DS}} = 0$	—	—	$\pm 10$	$\mu\text{A}$
Zero Gate Voltage Drain Current	$I_{\text{DSS}}$	$V_{\text{DS}} = 50\text{V}, V_{\text{GS}} = 0$	—	—	250	$\mu\text{A}$
Gate-Source Cutoff Voltage	$V_{\text{GS(off)}}$	$I_D = 1\text{mA}, V_{\text{DS}} = 10\text{V}$	1.0	—	2.0	V
Static Drain-Source on State Resistance	$R_{\text{DS(on)}}$	$I_D = 10\text{A}, V_{\text{GS}} = 10\text{V}^*$	—	0.033	0.045	$\Omega$
		$I_D = 10\text{A}, V_{\text{GS}} = 4\text{V}^*$	—	0.04	0.065	$\Omega$
Forward Transfer Admittance	$ y_{\text{fs}} $	$I_D = 10\text{A}, V_{\text{DS}} = 10\text{V}^*$	10	17	—	S
Input Capacitance	$C_{\text{iss}}$	$V_{\text{DS}} = 10\text{V}, V_{\text{GS}} = 0,$ $f = 1\text{MHz}$	—	1400	—	pF
Output Capacitance	$C_{\text{oss}}$		—	720	—	pF
Reverse Transfer Capacitance	$C_{\text{rss}}$		—	220	—	pF
Turn-On Delay Time	$t_{\text{d(on)}}$		—	15	—	ns
Rise Time	$t_r$	$I_D = 10\text{A}, V_{\text{GS}} = 10\text{V},$ $R_L = 3\Omega$	—	95	—	ns
Turn-off Delay Time	$t_{\text{d(off)}}$		—	300	—	ns
Fall Time	$t_f$		—	170	—	ns
Body-Drain Diode Forward Voltage	$V_{\text{DF}}$	$I_F = 10\text{A}, V_{\text{GS}} = 0$	—	1.05	—	V
Body-Drain Diode Reverse Recovery Time	$t_{\text{rr}}$	$I_F = 10\text{A}, V_{\text{GS}} = 0,$ $di_F/dt = 50\text{A}/\mu\text{s}$	—	110	—	ns

■See characteristic curves of 2SK972

MAXIMUM CHANNEL DISSIPATION CURVE



MAXIMUM CHANNEL DISSIPATION CURVE



4AK17

### MAXIMUM SAFE OPERATION AREA

