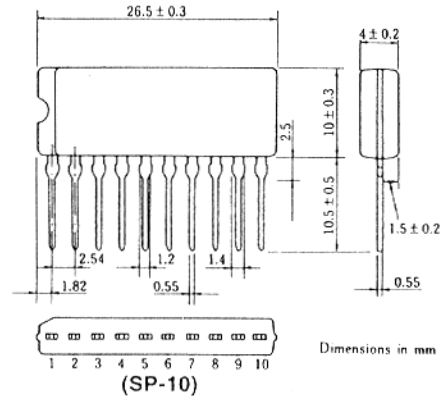


4AM11

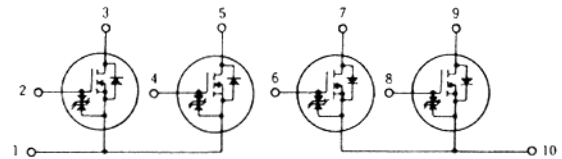
SILICON N-CHANNEL/P-CHANNEL POWER MOS FET ARRAY HIGH SPEED POWER SWITCHING

■ FEATURES

- Low On-Resistance
 - N-channel: $R_{DS(on)} \leq 0.17 \Omega$, $V_{GS} = 10 \text{ V}$,
 $I_D = 2.5 \text{ A}$
 - P-channel: $R_{DS(on)} \leq 0.2 \Omega$, $V_{GS} = -10 \text{ V}$,
 $I_D = -2.5 \text{ A}$
- Capable of 4 V Gate Drive
- Low Drive Current
- High Speed Switching
- High Density Mounting
- Suitable for H-bridged Motor Driver
- Discrete Packaged Devices of Same Die
 - N-channel: 2SK970, 2SK1093
 - P-channel: 2SJ172, 2SJ175



■ EQUIVALENT CIRCUIT



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

Item	Symbol	Rating		Unit
		Nch	Pch	
Drain-Source Voltage	V_{DS}	60	-60	V
Gate-Source Voltage	V_{GS}	± 20	± 20	V
Drain Current	I_D	5	-5	A
Drain Peak Current	$I_{D(\text{pulse})}^*$	20	-20	A
Body-Drain Diode Reverse Drain Current	I_{DR}	5	-5	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 ~ +150		$^\circ\text{C}$

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

** 4 Devices Operation

■ PIN CONNECTION

2, 4, 6, 8; Gate

3, 5, 7, 9; Drain

1, 10 ; Source

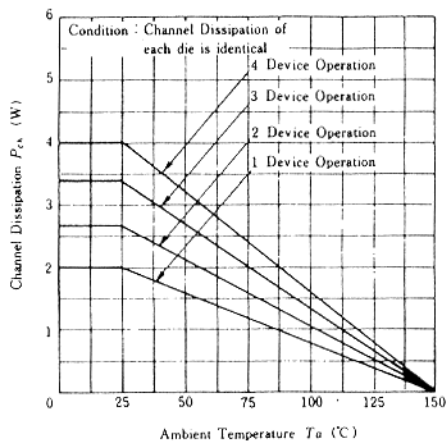
■ ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$) (1Unit)

Item	Symbol	Test Condition	N Channel			P Channel			Unit
			min.	typ.	max.	min.	typ.	max.	
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=10\text{mA}, V_{GS}=0$	60	—	—	-60	—	—	V
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	$I_G=\pm 100\mu\text{A}, V_{DS}=0$	± 20	—	—	± 20	—	—	V
Gate-Source Leak Current	I_{GSS}	$V_{GS}=\pm 16\text{V}, V_{DS}=0$	—	—	± 10	—	—	± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=50\text{V}, V_{GS}=0$	—	—	250	—	—	-250	μA
Gate-Source Cutoff Voltage	$V_{GS(off)}$	$I_D=1\text{mA}, V_{DS}=10\text{V}$	1.0	—	2.0	-1.0	—	-2.0	V
Static Drain-Source on State Resistance	$R_{DS(on)}$	$I_D=2.5\text{A}, V_{GS}=10\text{V}^*$	—	0.13	0.17	—	0.15	0.2	Ω
		$I_D=2.5\text{A}, V_{GS}=4\text{V}^*$	—	0.18	0.24	—	0.20	0.27	Ω
Forward Transfer Admittance	$ y_{fs} $	$I_D=2.5\text{A}, V_{DS}=10\text{V}^*$	2.7	4.5	—	2.7	5.0	—	S
Input Capacitance	C_{iss}	$V_{DS}=10\text{V}, V_{GS}=0,$ $f=1\text{MHz}$	—	400	—	—	900	—	pF
Output Capacitance	C_{oss}		—	220	—	—	460	—	pF
Reverse Transfer Capacitance	C_{rss}		—	60	—	—	130	—	pF
Turn-On Delay Time	$t_{d(on)}$	$I_D=2.5\text{A}, V_{GS}=10\text{V},$ $R_{\theta}=12\Omega$	—	5	—	—	8	—	ns
Rise Time	t_r		—	30	—	—	35	—	ns
Turn-off Delay Time	$t_{d(off)}$		—	170	—	—	180	—	ns
Fall Time	t_f		—	75	—	—	85	—	ns
Body-Drain Diode Forward Voltage	V_{DF}		$I_F=5\text{A}, V_{GS}=0$	—	1.0	—	—	-1.0	—
Body-Drain Diode Reverse Recovery Time	t_{rr}	$I_F=5\text{A}, V_{GS}=0,$ $di_F/dt=50\text{A}/\mu\text{s}$	—	100	—	—	170	—	ns

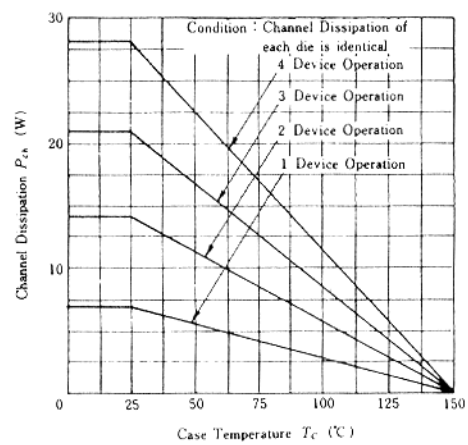
* Pulse Test
 Note) Polarity of test conditions for P channel device is reversed.

- Nch: See characteristic curves of 2SK970
- Pch: See characteristic curves of 2SJ172

MAXIMUM CHANNEL DISSIPATION CURVE



MAXIMUM CHANNEL DISSIPATION CURVE



4AM11

