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P1 98.2

N-CHANNEL POWER MOS FET ARRAY  
SWITCHING TYPE

DESCRIPTION

The  $\mu$ PA1522 is N-channel Power MOS FET Array that built in 4 circuits designed for solenoid, motor and lamp driver.

FEATURES

- 4 V driving is possible
- Large Current and Low On-state Resistance  
 $I_{D(pulse)} = \pm 8$  A  
 $R_{DS(on)} \leq 0.17 \Omega$  TYP. ( $V_{GS} = 10$  V)  
 $R_{DS(on)} \leq 0.29 \Omega$  TYP. ( $V_{GS} = 4$  V)
- 2.54 mm Pitch (0.1 inch)

ORDERING INFORMATION

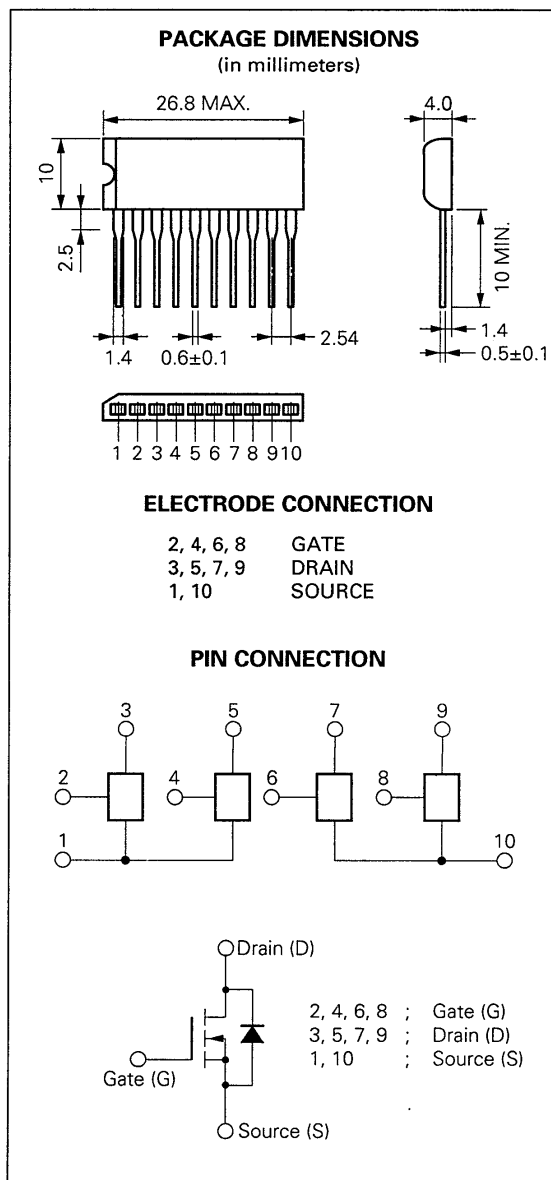
Part Number	Package	Quality Grade
$\mu$ PA1522H	10-Pin SIP	Standard

Please refer to "Quality grade on NEC Semiconductor Devices" (Document number IEI-1209) published by NEC Corporation to know the specification of quality grade on the devices and its recommended applications.

ABSOLUTE MAXIMUM RATINGS ( $T_a = 25$  °C)

Drain to Source Voltage	$V_{DSS}$	60	V
Gate to Source Voltage	$V_{GSS(AC)}$	$\pm 20$	V
Drain Current (DC)	$I_{D(DC)}$	$\pm 2.0$	A/unit
Drain Current (pulse)	$I_{D(pulse)*}$	$\pm 8.0$	A/unit
Total Power Dissipation (4 circuits) < $T_c = 25$ °C>	$P_{T1}$	28	W
Total Power Dissipation (4 circuits) < $T_a = 25$ °C>	$P_{T2}$	3.5	W
Channel Temperature	$T_{ch}$	150	°C
Storage Temperature	$T_{stg}$	-55 to +150	°C

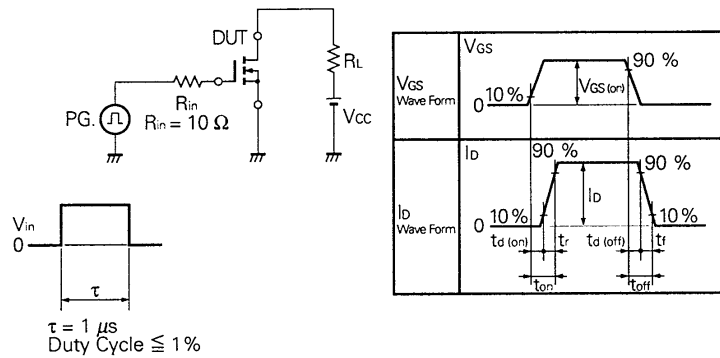
\*  $PW \leq 10$  ms, Duty Cycle  $\leq 1$  %



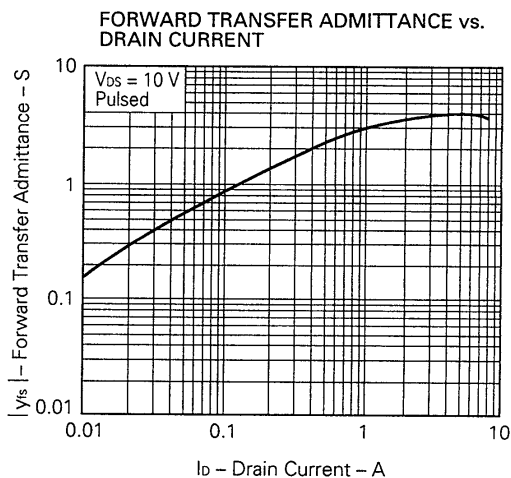
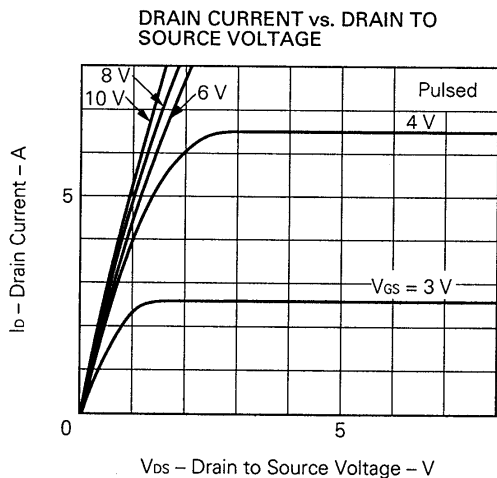
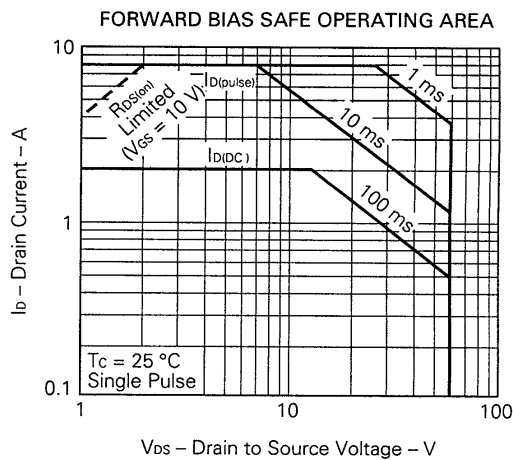
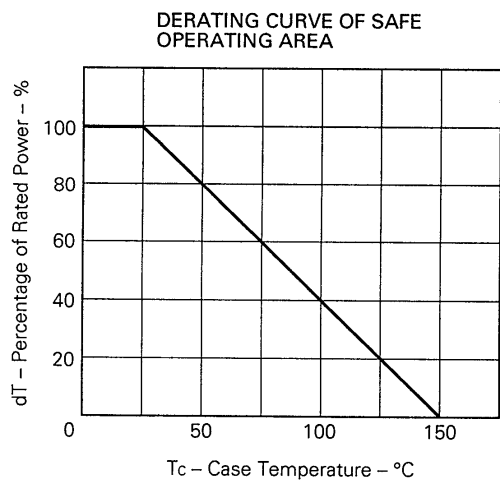
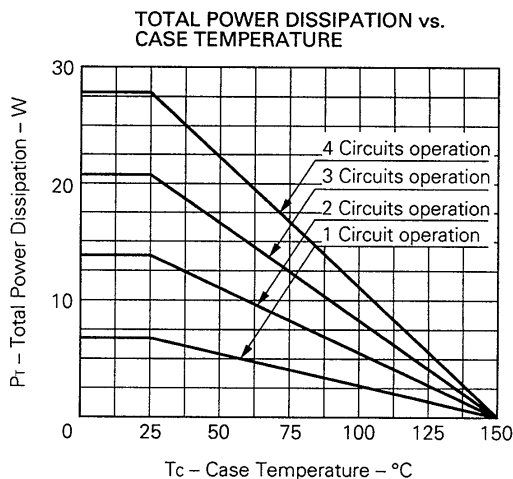
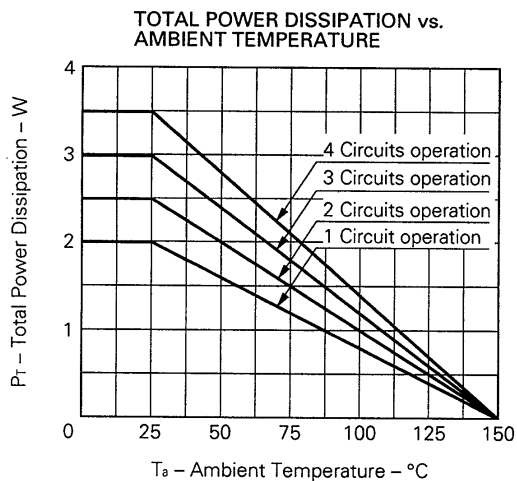
ELECTRICAL CHARACTERISTICS ( $T_a = 25\text{ }^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Drain Leakage Current	$I_{DSS}$			10	$\mu\text{A}$	$V_{DS} = 60\text{ V}, V_{GS} = 0$
Gate to Source Leakage Current	$I_{GSS}$			$\pm 100$	nA	$V_{GS} = \pm 20\text{ V}, V_{DS} = 0$
Gate to Source Cutoff Voltage	$V_{GS(off)}$	1.0		2.5	V	$V_{DS} = 10\text{ V}, I_D = 1\text{ mA}$
Forward Transfer Admittance	$ y_{fs} $	1.0			S	$V_{DS} = 10\text{ V}, I_D = 1\text{ A}$
Drain to Source On-state Resistance	$R_{DS(on)1}$		0.17	0.25	$\Omega$	$V_{GS} = 10\text{ V}, I_D = 1\text{ A}$
Drain to Source On-state Resistance	$R_{DS(on)2}$		0.29	0.35	$\Omega$	$V_{GS} = 4\text{ V}, I_D = 0.8\text{ A}$
Input Capacitance	$C_{iss}$		550		pF	$V_{DS} = 10\text{ V}$ $V_{GS} = 0$ $f = 1.0\text{ MHz}$
Output Capacitance	$C_{oss}$		200		pF	
Reverse Transfer Capacitance	$C_{rss}$		60		pF	
Turn-On Delay Time	$t_{d(on)}$		10		ns	$I_D = 1\text{ A}$ $V_{GS} = 10\text{ V}$ $V_{CC} = 50\text{ V}$ $R_L = 50\text{ }\Omega, R_{in} = 10\text{ }\Omega$ See Fig. 1
Rise Time	$t_r$		20		ns	
Turn-Off Delay Time	$t_{d(off)}$		80		ns	
Fall Time	$t_f$		20		ns	

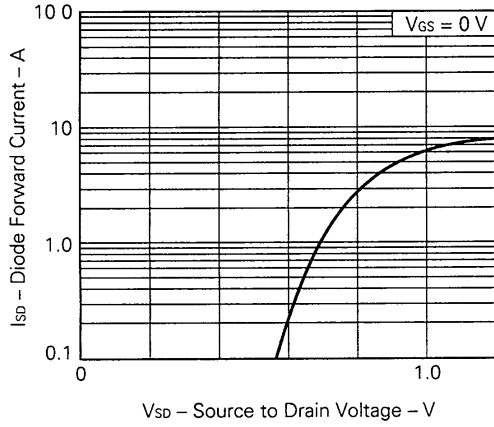
Fig. 1 Switching Test Circuit



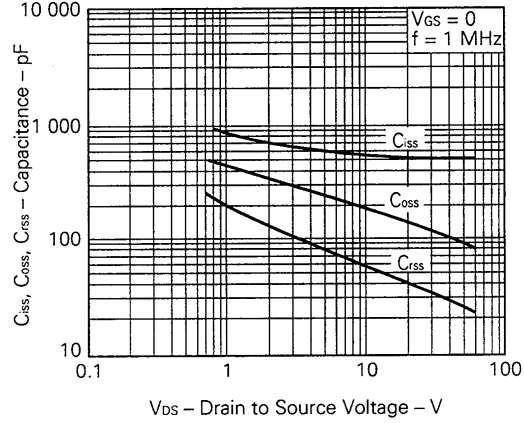
TYPICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )



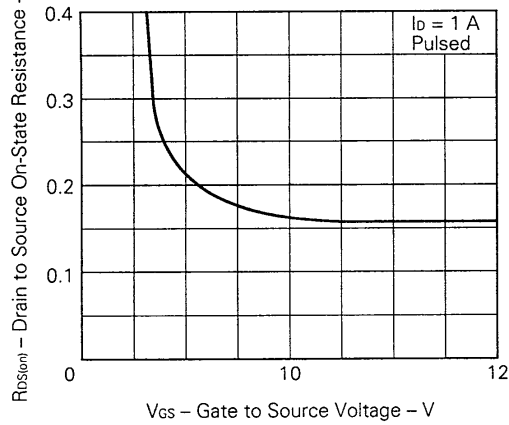
SOURCE TO DRAIN DIODE FORWARD VOLTAGE



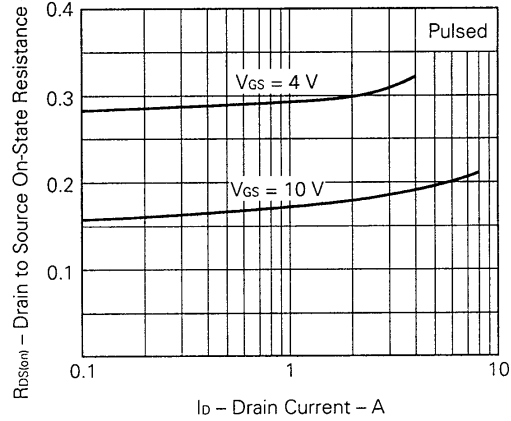
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



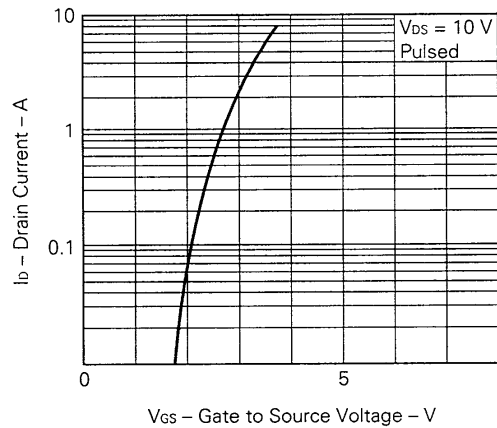
DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE



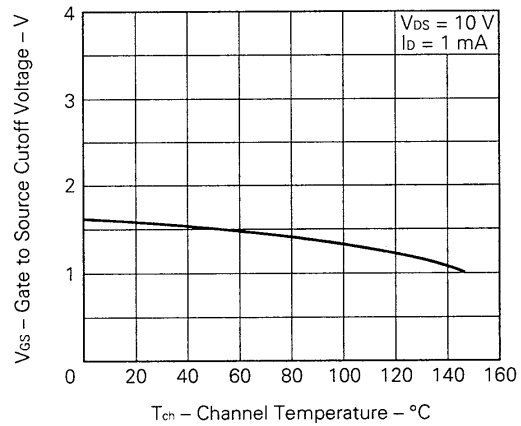
DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT

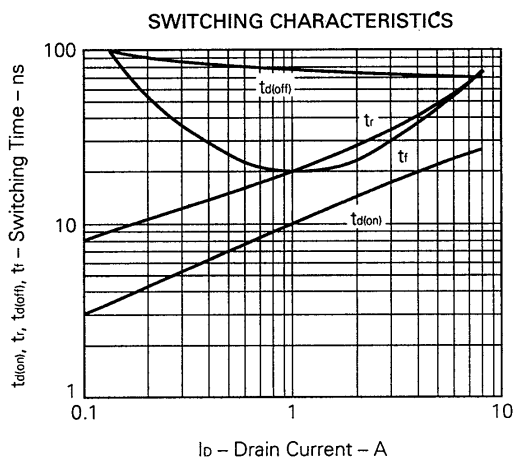
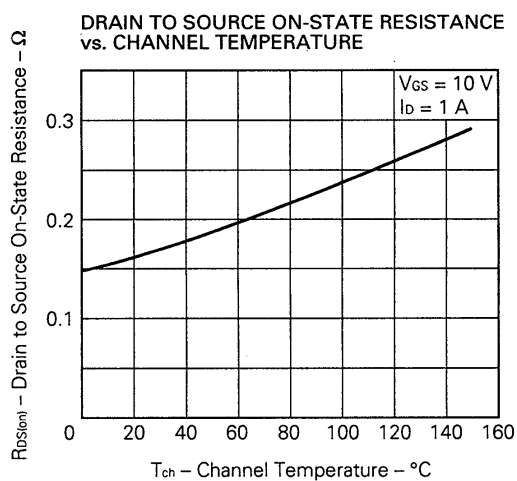


TYPICAL TRANSFER CHARACTERISTICS



GATE TO SOURCE CUTOFF VOLTAGE vs. CHANNEL TEMPERATURE





**Reference**

Application note name	No.
Quality control of NEC semiconductors devices.	TEI-1202
Quality control guide of semiconductors devices.	MEI-1202
Assembly manual of semiconductors devices.	IEI-1207
Safe operating area of Power MOS FET	TEA-1034
Application circuit using Power MOS FET	TEB-1035

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Application examples recommended by NEC Corporation.

Standard: Computer, Office equipment, Communication equipment, Test and Measurement equipment, Machine tools, Industrial robots, Audio and Visual equipment, Other consumer products, etc.

Special: Automotive and Transportation equipment, Traffic control systems, Antidisaster systems, Anticrime systems, etc.