

Dual N-CHANNEL MOSFET FOR SWITCHING

DESCRIPTION

The μ PA2560 is Dual N-channel MOSFETs designed for Back light inverters and power management applications of portable equipments.

Dual N-channel MOSFETs are assembled in one package, to contribute minimize the equipments.

FEATURES

- 4.5 V drive available
- Low on-state resistance
 $R_{DS(on)1} = 50 \text{ m}\Omega \text{ MAX. (} V_{GS} = 10 \text{ V, } I_D = 2 \text{ A)}$
 $R_{DS(on)2} = 83 \text{ m}\Omega \text{ MAX. (} V_{GS} = 4.5 \text{ V, } I_D = 2 \text{ A)}$
- Built-in gate protection diode
- Small and surface mount package (8-pin VSO (2429))

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

Drain to Source Voltage (V _{GS} = 0 V)	V _{DSS}	30	V
Gate to Source Voltage (V _{DS} = 0 V)	V _{GSS}	±20	V
Drain Current (DC)	I _{D(DC)}	±4.5	A
Drain Current (pulse) ^{Note1}	I _{D(pulse)}	±18	A
Total Power Dissipation (1 unit, 5 s) ^{Note2}	P _{T1}	1.5	W
Total Power Dissipation (2 units, 5 s) ^{Note2}	P _{T2}	2.2	W
Channel Temperature	T _{ch}	150	°C
Storage Temperature	T _{stg}	-55 to +150	°C

- Notes** 1. PW ≤ 10 μs, Duty Cycle ≤ 1%
 2. Mounted on FR-4 board of 25.4 mm x 25.4 mm x 0.8 mm.

ORDERING INFORMATION

PART NUMBER	LEAD PLATING	PACKING	PACKAGE
μ PA2560T1H-T1-AT ^{Note}	Pure Sn	8 mm embossed taping	8-pin VSO (2429)
μ PA2560T1H-T2-AT ^{Note}		3000 p/reel	

Note Pb-free (This product does not contain Pb in the external electrode and other parts.)

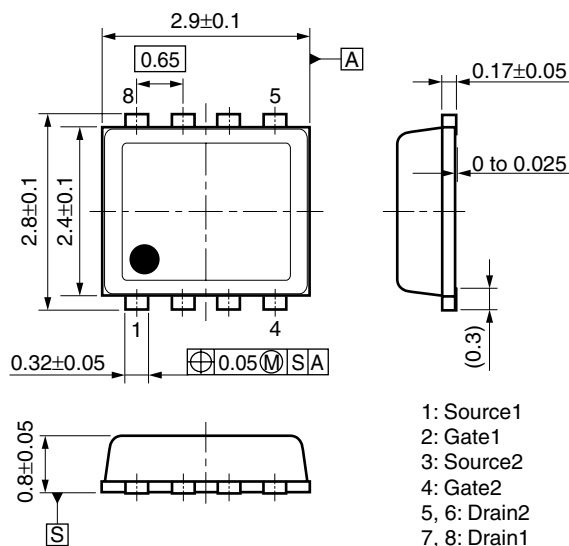
Marking: 2560

Remark The diode connected between the gate and source of the transistor serves as a protector against ESD. When this device actually used, an additional protection circuit is externally required if a voltage exceeding the rated voltage may be applied to this device.

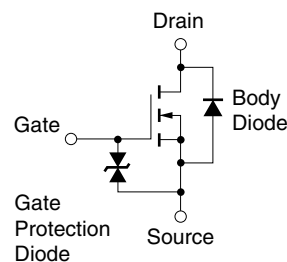
Caution This product is electrostatic-sensitive device due to low ESD capability and should be handled with caution for electrostatic discharge.

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PACKAGE DRAWING (Unit: mm)



EQUIVALENT CIRCUIT (1/2)

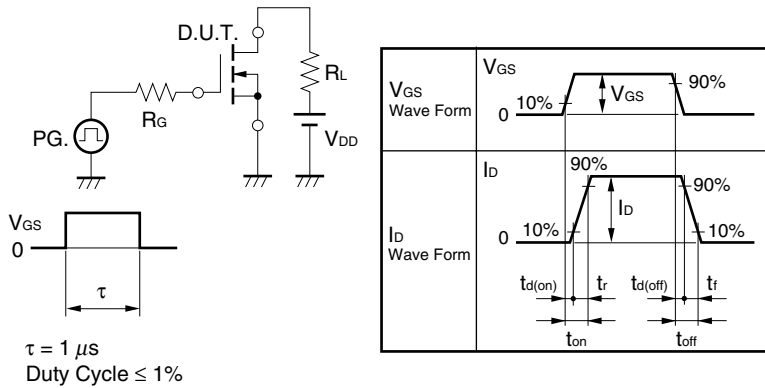


ELECTRICAL CHARACTERISTICS (T_A = 25°C)

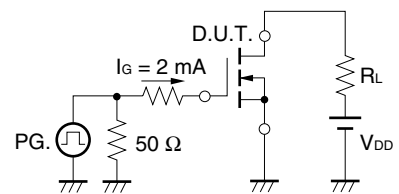
CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 30 V, V _{GS} = 0 V			1	μA
Gate Leakage Current	I _{GSS}	V _{GS} = ±16 V, V _{DS} = 0 V			±10	μA
Gate to Source Cut-off Voltage	V _{GS(off)}	V _{DS} = 10 V, I _D = 1 mA	1.0		2.5	V
Forward Transfer Admittance ^{Note}	y _{fs}	V _{DS} = 10 V, I _D = 2 A	1			S
Drain to Source On-state Resistance ^{Note}	R _{DS(on)1}	V _{GS} = 10 V, I _D = 2 A		38	50	mΩ
	R _{DS(on)2}	V _{GS} = 4.5 V, I _D = 2 A		48	83	mΩ
Input Capacitance	C _{iss}	V _{DS} = 10 V,		310		pF
Output Capacitance	C _{oss}	V _{GS} = 0 V,		65		pF
Reverse Transfer Capacitance	C _{rss}	f = 1.0 MHz		27		pF
Turn-on Delay Time	t _{d(on)}	V _{DD} = 15 V, I _D = 2 A,		6		ns
Rise Time	t _r	V _{GS} = 10 V,		2.8		ns
Turn-off Delay Time	t _{d(off)}	R _G = 6 Ω		15		ns
Fall Time	t _f			2.4		ns
Total Gate Charge	Q _G	V _{DD} = 24 V, V _{GS} = 10 V, I _D = 4.5 A		6.6		nC
Body Diode Forward Voltage ^{Note}	V _{F(S-D)}	I _F = 4.5 A, V _{GS} = 0 V		0.9		V

Note Pulsed

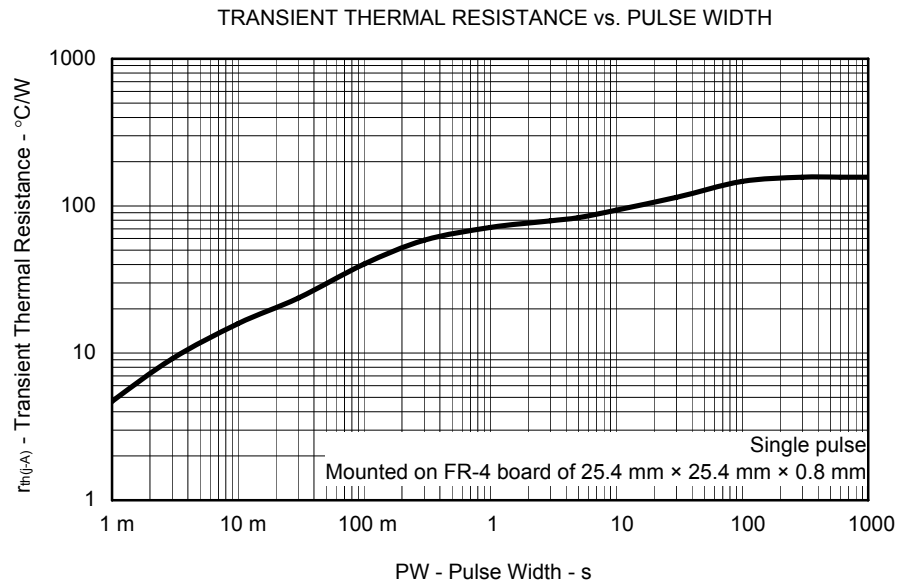
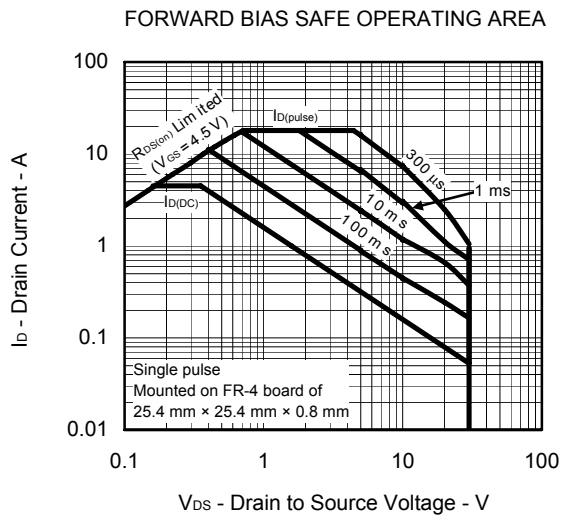
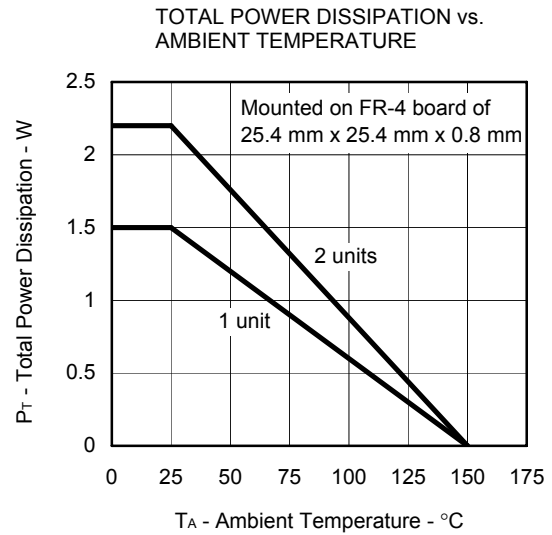
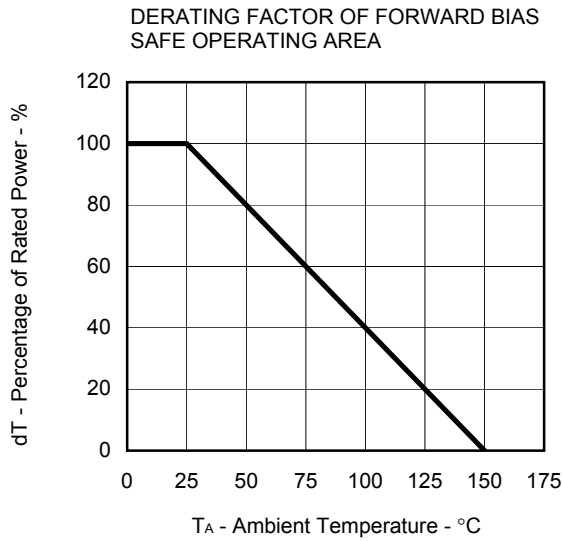
TEST CIRCUIT 1 SWITCHING TIME



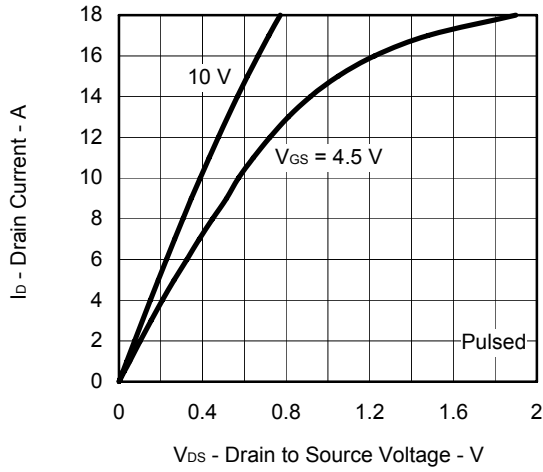
TEST CIRCUIT 2 GATE CHARGE



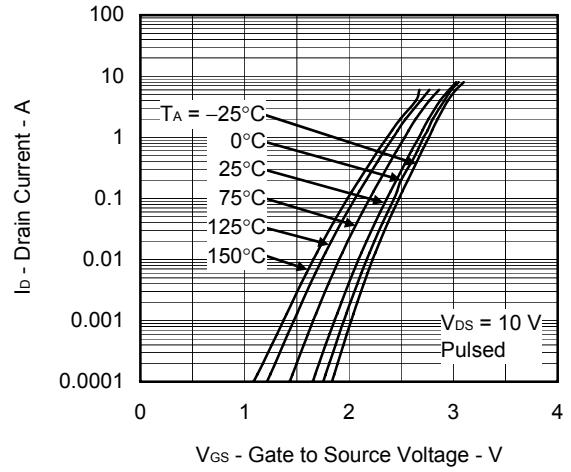
TYPICAL CHARACTERISTICS (T_A = 25°C)



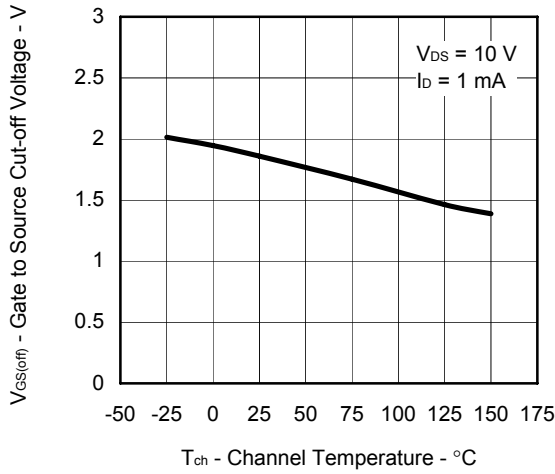
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



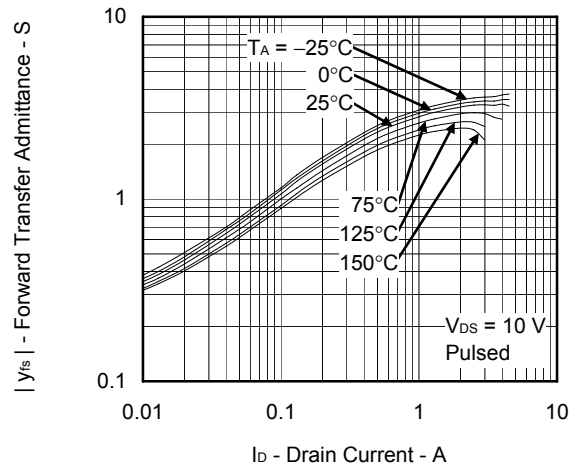
FORWARD TRANSFER CHARACTERISTICS



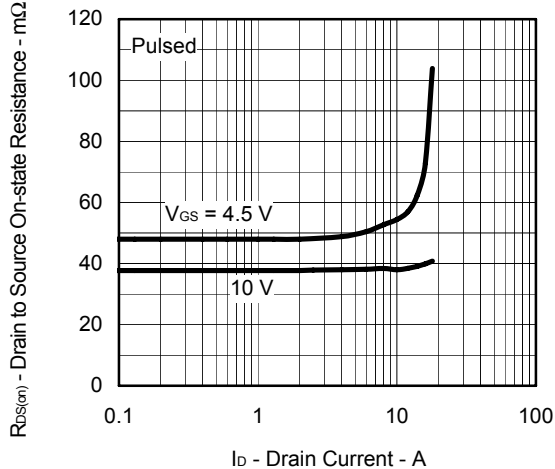
GATE TO SOURCE CUT-OFF VOLTAGE vs. CHANNEL TEMPERATURE



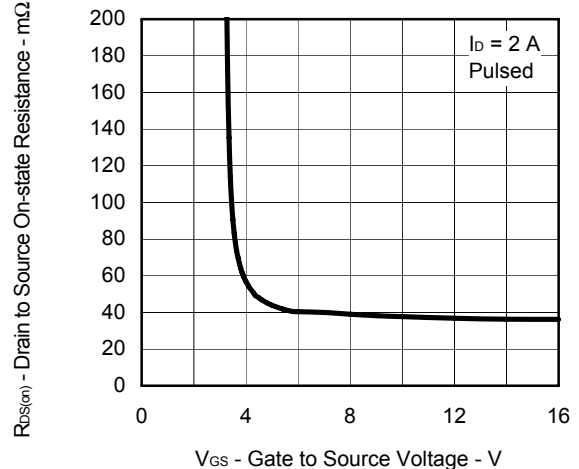
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



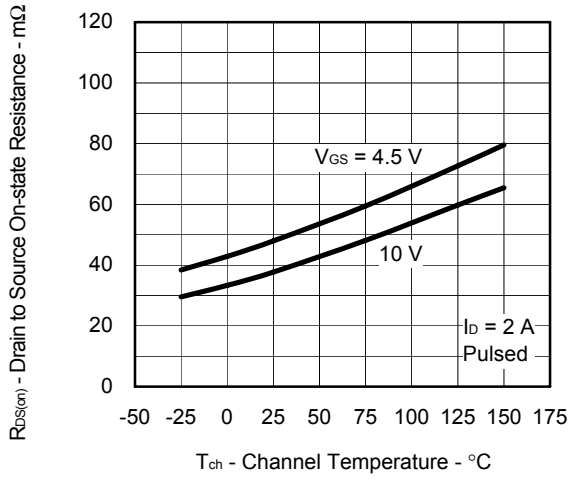
DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



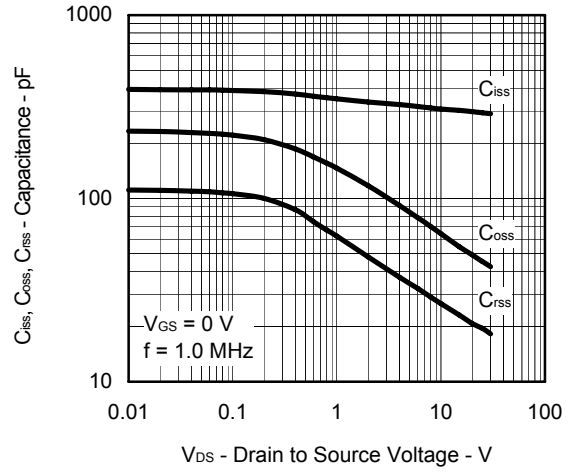
DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE



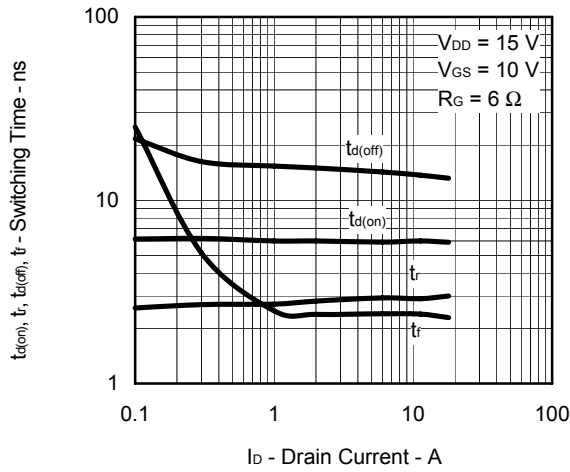
DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE



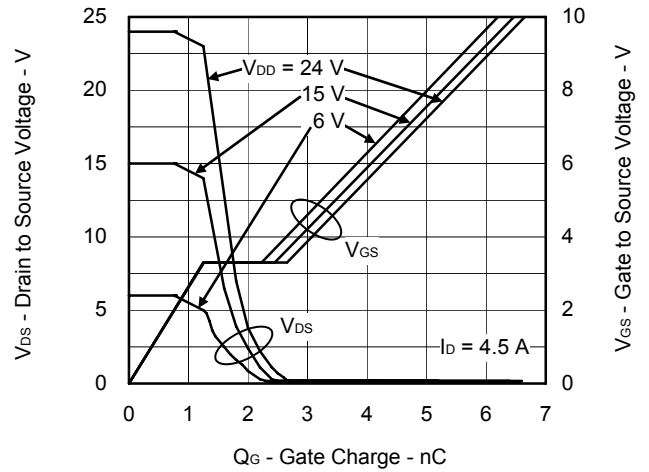
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



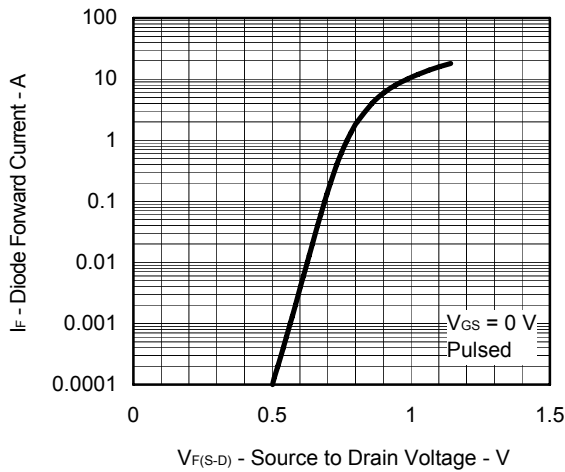
SWITCHING CHARACTERISTICS



DYNAMIC INPUT/OUTPUT CHARACTERISTICS



SOURCE TO DRAIN DIODE FORWARD VOLTAGE



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