

MOS FIELD EFFECT TRANSISTOR μ PA2734GR

SWITCHING P-CHANNEL MOS FET

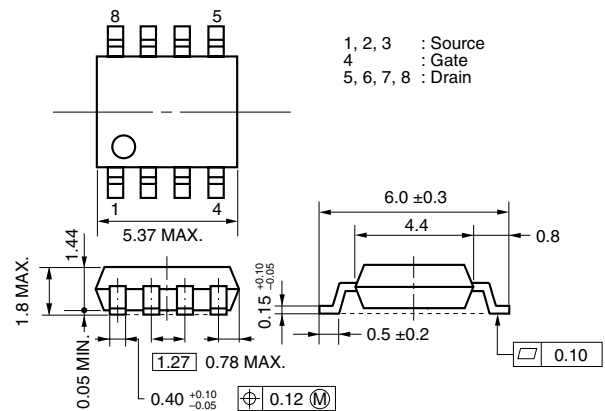
DESCRIPTION

The μ PA2734GR is P-Channel MOS Field Effect Transistor designed for DC/DC converter and power management applications.

FEATURES

- Low on-state resistance
 $R_{DS(on)1} = 38 \text{ m}\Omega \text{ MAX. (} V_{GS} = -4.5 \text{ V, } I_D = -7.0 \text{ A)}$
 $R_{DS(on)2} = 72 \text{ m}\Omega \text{ MAX. (} V_{GS} = -2.5 \text{ V, } I_D = -3.5 \text{ A)}$
- Low input capacitance
 $C_{iss} = 1130 \text{ pF TYP. (} V_{DS} = -10 \text{ V, } V_{GS} = 0 \text{ V)}$
- Built-in gate protection diode
- Small and surface mount package (Power SOP8)
- RoHS Compliant

PACKAGE DRAWING (Unit: mm)



ORDERING INFORMATION

PART NUMBER	LEAD PLATING	PACKING	PACKAGE
μ PA2734GR-E1-AT ^{Note}	Pure Sn	Tape 2500 p/reel	Power SOP8
μ PA2734GR-E2-AT ^{Note}			0.08 g TYP.

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

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$, All terminals are connected.)

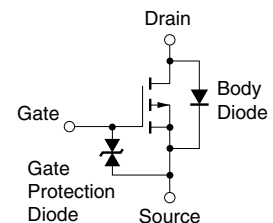
Drain to Source Voltage ($V_{GS} = 0 \text{ V}$)	V_{DSS}	-30	V
Gate to Source Voltage ($V_{DS} = 0 \text{ V}$)	V_{GSS}	± 12	V
Drain Current (DC) ^{Note1}	$I_{D(DC)}$	∓ 7	A
Drain Current (pulse) ^{Note2}	$I_{D(pulse)}$	∓ 28	A
Total Power Dissipation ^{Note3}	P_{T1}	1.1	W
Total Power Dissipation ($PW = 10 \text{ sec}$) ^{Note3}	P_{T2}	2.5	W
Channel Temperature	T_{ch}	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Notes 1. $V_{GS} = -4.5 \text{ V}$

2. $PW \leq 10 \mu\text{s}$, Duty Cycle $\leq 1\%$

3. Mounted on glass epoxy board of 25.4 mm x 25.4 mm x 0.8 mm

EQUIVALENT CIRCUIT



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.

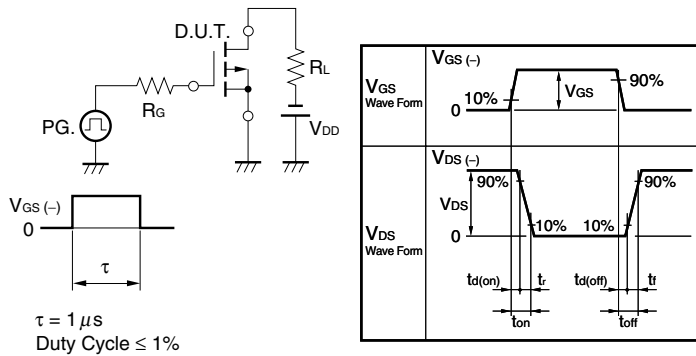
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ELECTRICAL CHARACTERISTICS (T_A = 25°C, All terminals are connected.)

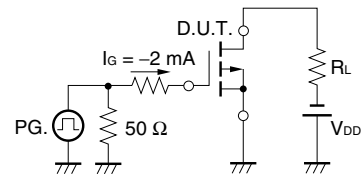
CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -30 V, V _{GS} = 0 V			-1	μA
Gate Leakage Current	I _{GSS}	V _{GS} = ±12 V, V _{DS} = 0 V			±10	μA
Gate to Source Cut-off Voltage	V _{GS(off)}	V _{DS} = -10 V, I _D = -1 mA	-0.5		-1.5	V
Forward Transfer Admittance ^{Note}	y _{fs}	V _{DS} = -10 V, I _D = -3.5 A	5			S
Drain to Source On-state Resistance ^{Note}	R _{DS(on)1}	V _{GS} = -4.5 V, I _D = -7.0 A		32	38	mΩ
	R _{DS(on)2}	V _{GS} = -2.5 V, I _D = -3.5 A		53	72	mΩ
Input Capacitance	C _{iss}	V _{DS} = -10 V,		1130		pF
Output Capacitance	C _{oss}	V _{GS} = 0 V,		200		pF
Reverse Transfer Capacitance	C _{rss}	f = 1 MHz		160		pF
Turn-on Delay Time	t _{d(on)}	V _{DD} = -15 V, I _D = -3.5 A,		13		ns
Rise Time	t _r	V _{GS} = -4.5 V,		20		ns
Turn-off Delay Time	t _{d(off)}	R _G = 10 Ω		82		ns
Fall Time	t _f			77		ns
Total Gate Charge	Q _G	V _{DD} = -24 V,		12		nC
Gate to Source Charge	Q _{GS}	V _{GS} = -4.5 V,		2.7		nC
Gate to Drain Charge	Q _{GD}	I _D = -7 A		5.9		nC
Body Diode Forward Voltage ^{Note}	V _{F(S-D)}	I _F = 7 A, V _{GS} = 0 V		0.93	1.2	V
Reverse Recovery Time	t _{rr}	I _F = 7 A, V _{GS} = 0 V,		64		ns
Reverse Recovery Charge	Q _{rr}	di/dt = 100 A/μs		55		nC

Note Pulsed

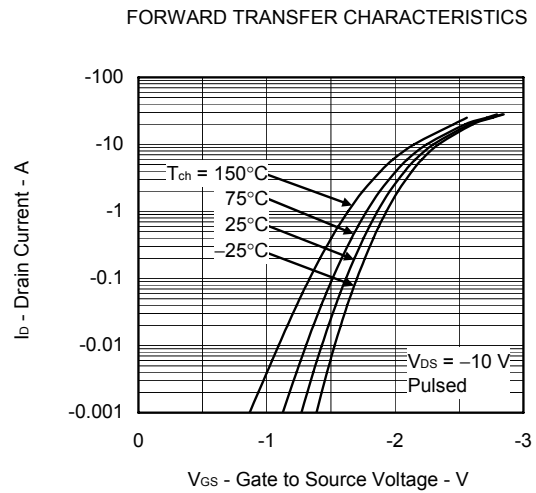
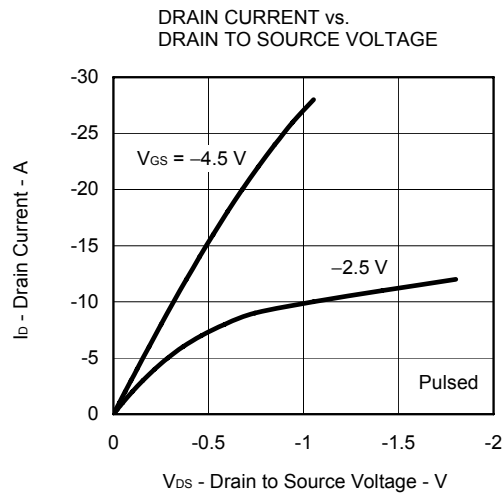
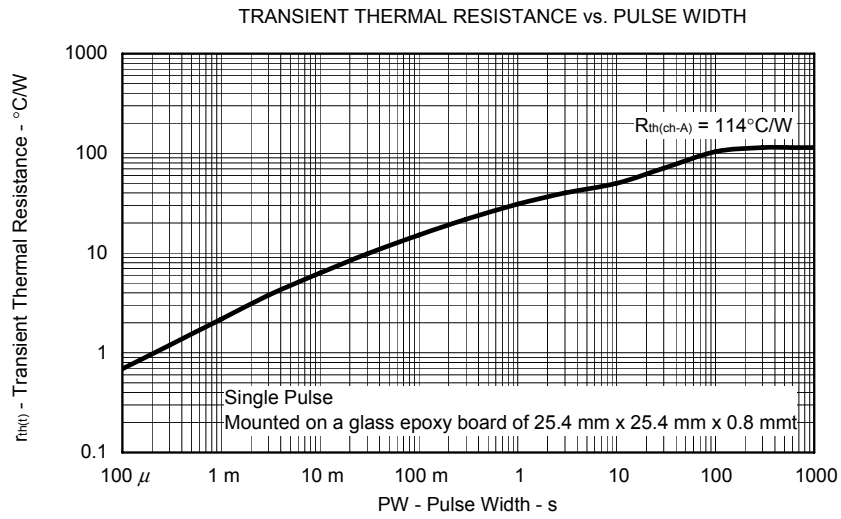
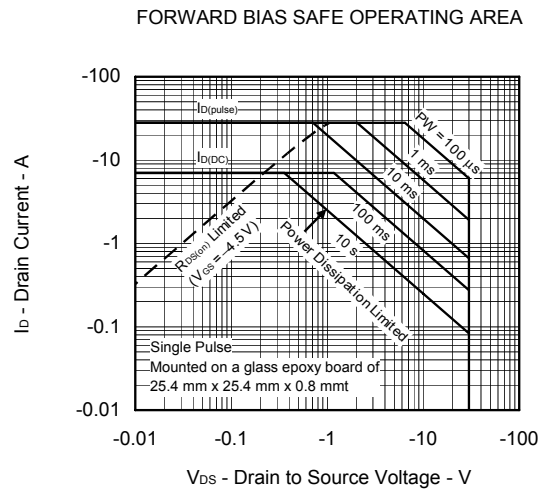
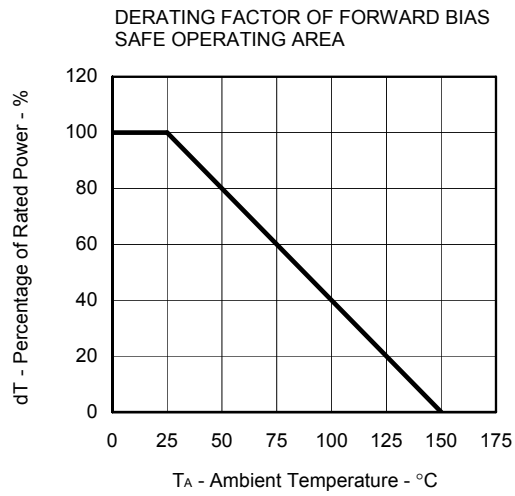
TEST CIRCUIT 1 SWITCHING TIME



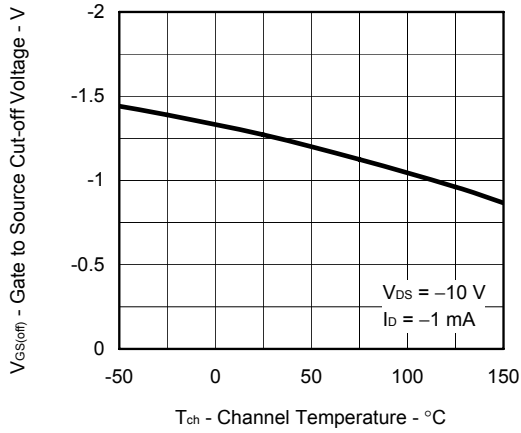
TEST CIRCUIT 2 GATE CHARGE



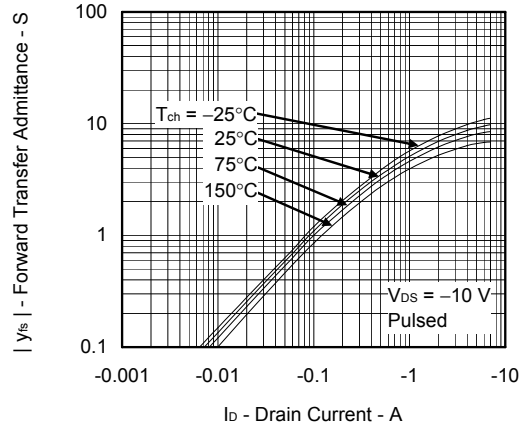
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)



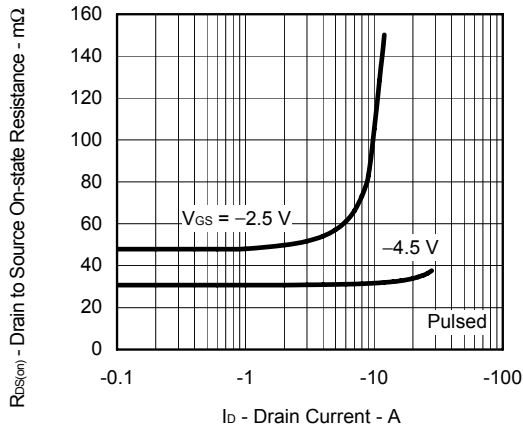
GATE TO SOURCE CUT-OFF VOLTAGE vs. CHANNEL TEMPERATURE



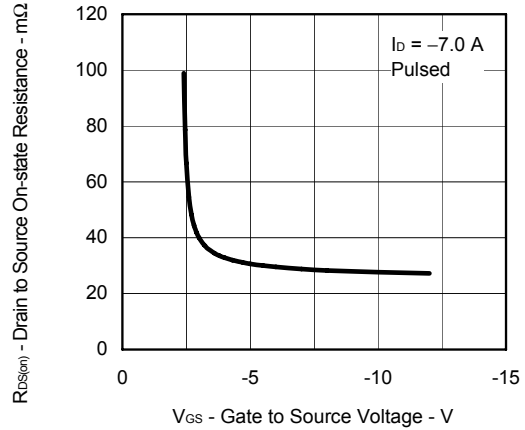
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



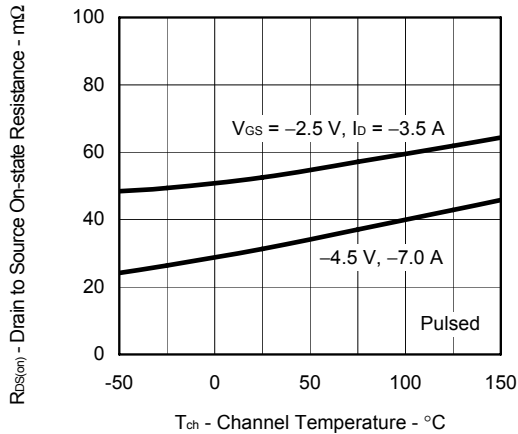
DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



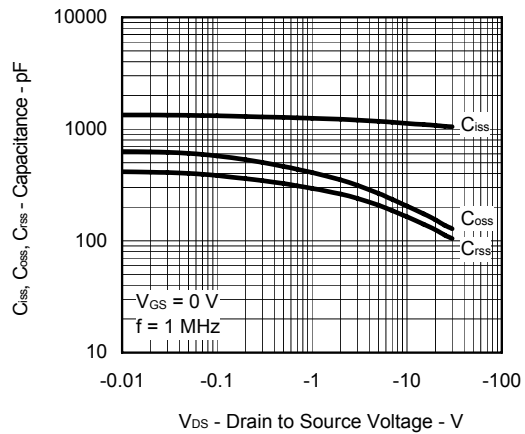
DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE



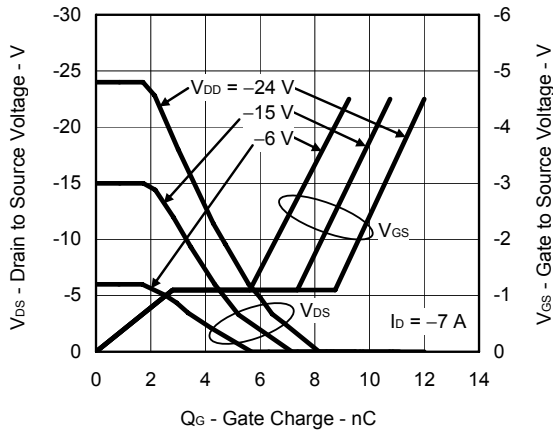
DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE



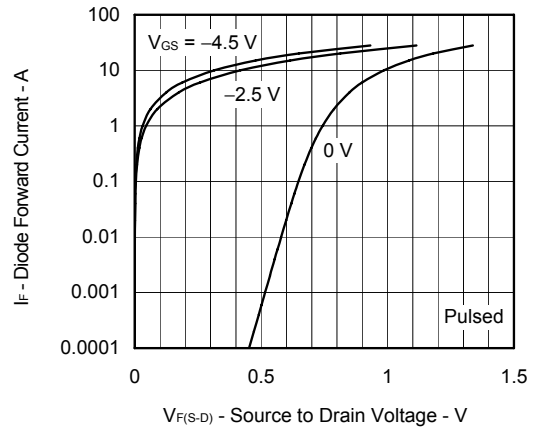
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



DYNAMIC INPUT/OUTPUT CHARACTERISTICS



SOURCE TO DRAIN DIODE FORWARD VOLTAGE



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