

XP134A02A1SR



Power MOS FET

- ◆ P-Channel Power MOS FET
- ◆ DMOS Structure
- ◆ Low On-State Resistance: 0.11Ω (max)
- ◆ Ultra High-Speed Switching
- ◆ SOP-8 Package
- ◆ Two FET Devices Built-in

General Description

The XP134A02A1SR is a P-Channel Power MOS FET with low on-state resistance and ultra high-speed switching characteristics.

Two FET devices are built into the one package.

Because high-speed switching is possible, the IC can be efficiently set thereby saving energy.

The small SOP-8 package makes high density mounting possible.

Applications

- Notebook PCs
- Cellular and portable phones
- On-board power supplies
- Li-ion battery systems

Features

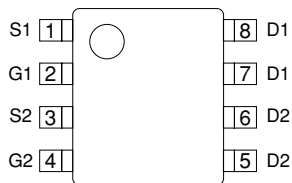
Low on-state resistance : $R_{ds(on)}=0.11\Omega$ ($V_{gs}=-4.5V$)
: $R_{ds(on)}=0.2\Omega$ ($V_{gs}=-2.5V$)

Ultra high-speed switching

Operational Voltage : -2.5V

High density mounting : SOP-8

Pin Configuration

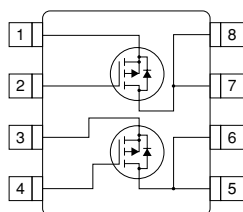


SOP-8
(TOP VIEW)

Pin Assignment

PIN NUMBER	PIN NAME	FUNCTION
1	S1	Source
2	G1	Gate
3	S2	Source
4	G2	Gate
5-6	D2	Drain
7-8	D1	Drain

Equivalent Circuit



P-Channel MOS FET
(2 devices built-in)

Absolute Maximum Ratings

$T_a=25^\circ\text{C}$

PARAMETER	SYMBOL	RATINGS	UNITS
Drain-Source Voltage	V_{dss}	-20	V
Gate-Source Voltage	V_{gss}	± 12	V
Drain Current (DC)	I_d	-4	A
Drain Current (Pulse)	I_{dp}	-12	A
Reverse Drain Current	I_{dr}	-4	A
Continuous Channel Power Dissipation (note)	P_d	2	W
Channel Temperature	T_{ch}	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55~150	$^\circ\text{C}$

Note: When implemented on a glass epoxy PCB

Electrical Characteristics

DC Characteristics

Ta=25°C

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Drain Cut-off Current	Idss	Vds=-20V, Vgs=0V			-10	μA
Gate-Source Leakage Current	Igss	Vgs=±12V, Vds=0V			±1	μA
Gate-Source Cut-off Voltage	Vgs(off)	Id=-1mA, Vds=-10V	-0.5		-1.2	V
Drain-Source On-state Resistance (note)	Rds(on)	Id=-2A, Vgs=-4.5V		0.08	0.11	Ω
		Id=-2A, Vgs=-2.5V		0.14	0.2	Ω
Forward Transfer Admittance (note)	Yfs	Id=-2A, Vds=-10V		5.5		S
Body Drain Diode Forward Voltage	Vf	If=-4A, Vgs=0V		-0.85	-1.1	V

Note: Effective during pulse test.

Dynamic Characteristics

Ta=25°C

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Input Capacitance	Ciss	Vds=-10V, Vgs=0V f=1MHz		800		pF
Output Capacitance	Coss			550		pF
Feedback Capacitance	Crss			200		pF

Switching Characteristics

Ta=25°C

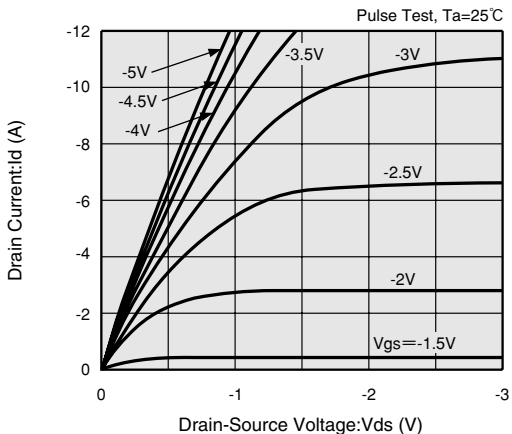
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Turn-on Delay Time	td (on)	Vgs=-5V, Id=-2A Vdd=-10V		15		ns
Rise Time	tr			25		ns
Turn-off Delay Time	td (off)			30		ns
Fall Time	tf			15		ns

Thermal Characteristics

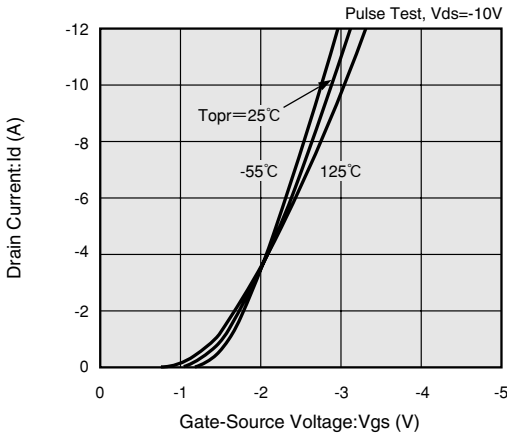
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Thermal Resistance (channel-ambience)	Rth (ch-a)	Implement on a glass epoxy resin PCB		62.5		°C/W

Typical Performance Characteristics

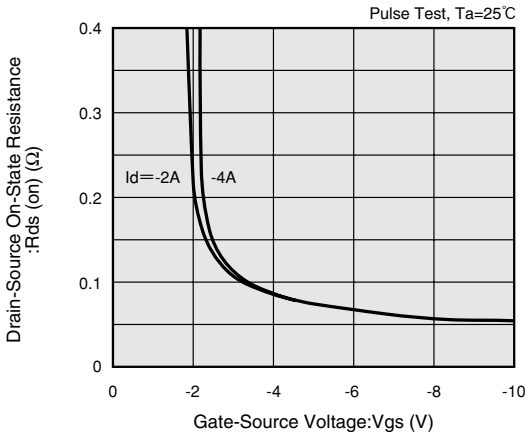
DRAIN CURRENT vs. DRAIN-SOURCE VOLTAGE



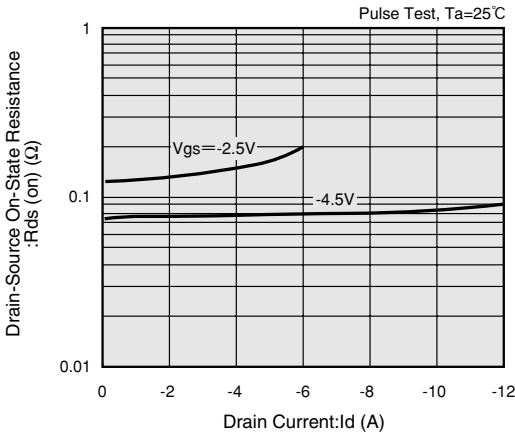
DRAIN CURRENT vs. GATE-SOURCE VOLTAGE



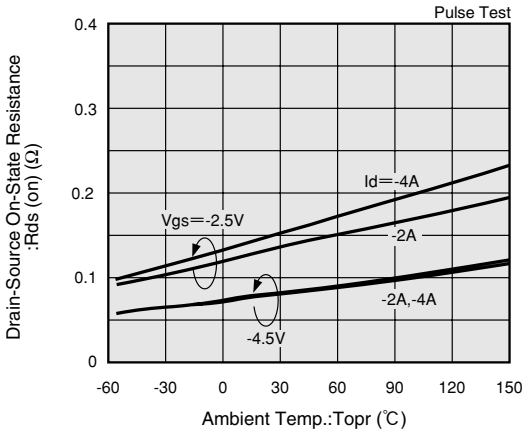
DRAIN-SOURCE ON-STATE RESISTANCE vs. GATE-SOURCE VOLTAGE



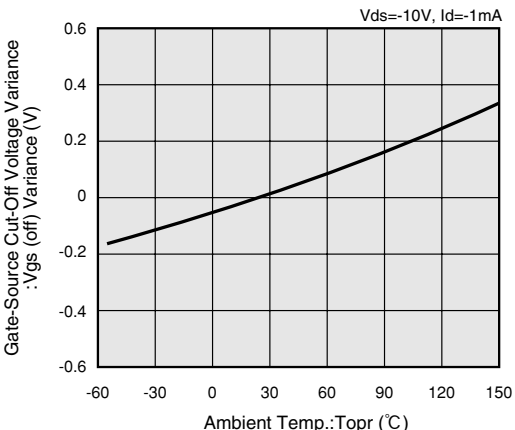
DRAIN-SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



DRAIN-SOURCE ON-STATE RESISTANCE vs. AMBIENT TEMPERATURE

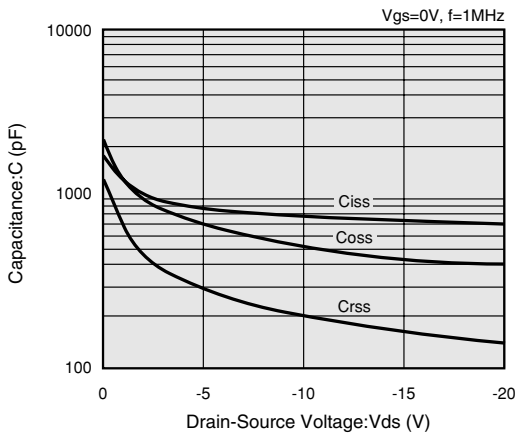


GATE-SOURCE CUT-OFF VOLTAGE VARIANCE vs. AMBIENT TEMPERATURE

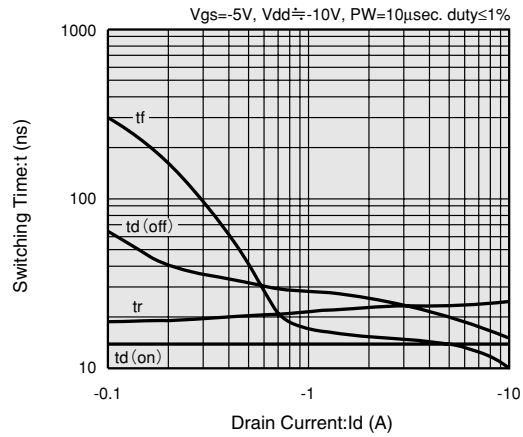


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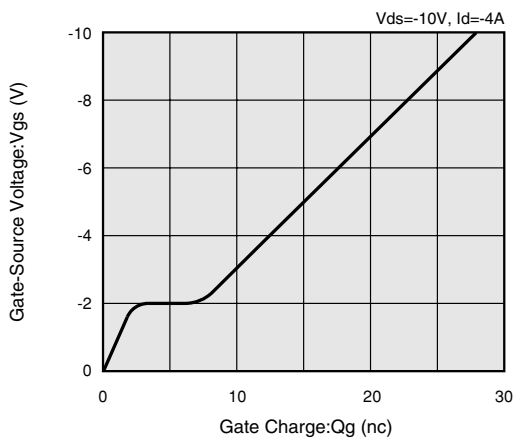
CAPACITANCE vs. DRAIN-SOURCE VOLTAGE



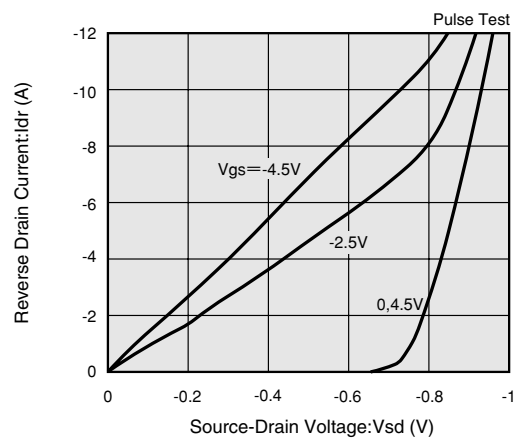
SWITCHING TIME vs. DRAIN CURRENT



GATE-SOURCE VOLTAGE vs. GATE CHARGE



REVERSE DRAIN CURRENT vs. SOURCE-DRAIN VOLTAGE



STANDARDIZED TRANSITION THERMAL RESISTANCE vs. PULSE WIDTH

