

XP134A1275SR



Power MOS FET

- ◆P-Channel Power MOS FET
- ◆DMOS Structure
- ◆Low On-State Resistance : 0.075Ω (max)
- ◆Ultra High-Speed Switching
- ◆SOP-8 Package
- ◆2 FET Devices Built-in

General Description

The XP134A1275SR 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

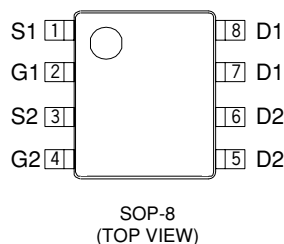
Low on-state resistance : $R_{ds(on)} = 0.075\Omega$ ($V_{gs} = -4.5V$)
: $R_{ds(on)} = 0.115\Omega$ ($V_{gs} = -2.5V$)

Ultra high-speed switching

Operational Voltage : $-2.5V$

High density mounting : SOP-8

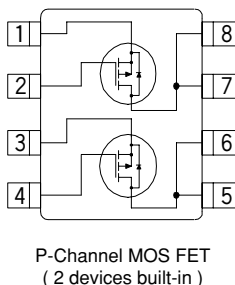
Pin Configuration



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



Absolute Maximum Ratings

$T_a = 25^\circ C$			
PARAMETER	SYMBOL	RATINGS	UNITS
Drain - Source Voltage	V_{dss}	- 20	V
Gate - Source Voltage	V_{gss}	± 12	V
Drain Current (DC)	I_d	- 4.5	A
Drain Current (Pulse)	I_{dp}	- 18	A
Reverse Drain Current	I_{dr}	- 4.5	A
Continuous Channel Power Dissipation (note)	P_d	2	W
Channel Temperature	T_{ch}	150	$^\circ C$
Storage Temperature	T_{stg}	- 55 ~ 150	$^\circ C$

(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	I _{dss}	V _{ds} = - 20V , V _{gs} = 0V			- 10	μA
Gate-Source Leakage Current	I _{gss}	V _{gs} = ± 12V , V _{ds} = 0V			± 1	μA
Gate-Source Cut-off Voltage	V _{gs} (off)	I _d = - 1mA , V _{ds} = - 10V	- 0.5		- 1.2	V
Drain-Source On-state Resistance (note)	R _{ds} (on)	I _d = - 2.5A , V _{gs} = - 4.5V		0.062	0.075	Ω
		I _d = - 2.5A , V _{gs} = - 2.5V		0.095	0.115	Ω
Forward Transfer Admittance (note)	Y _{fs}	I _d = - 2.5A , V _{ds} = - 10V		7.5		S
Body Drain Diode Forward Voltage	V _f	I _f = - 4.5A , V _{gs} = 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	C _{iss}	V _{ds} = - 10V , V _{gs} = 0V f = 1 MHz		770		pF
Output Capacitance	C _{oss}			440		pF
Feedback Capacitance	C _{rss}			190		pF

Switching Characteristics

Ta=25°C

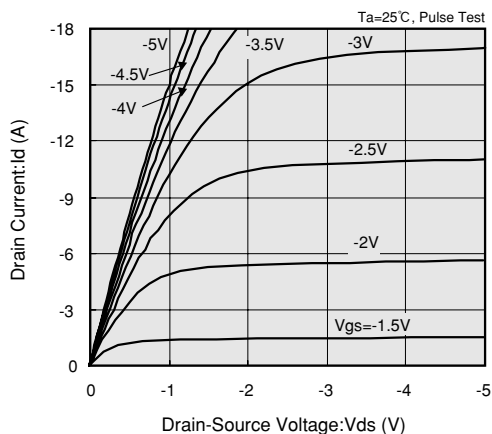
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Turn-on Delay Time	t _d (on)	V _{gs} = - 5V , I _d = - 2.5A V _{dd} = - 10V		15		ns
Rise Time	t _r			20		ns
Turn-off Delay Time	t _d (off)			55		ns
Fall Time	t _f			30		ns

Thermal Characteristics

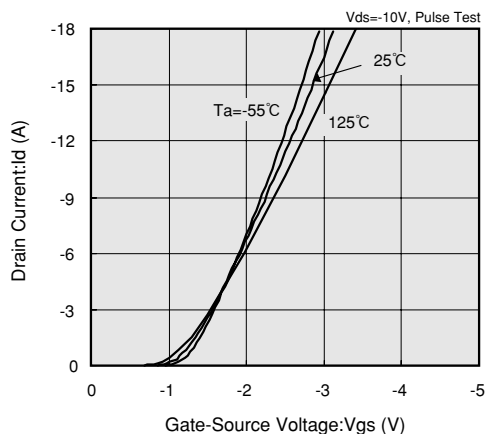
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Thermal Resistance (channel-ambience)	R _{th} (ch-a)	Implement on a glass epoxy resin PCB		62.5		°C / W

Typical Performance Characteristics

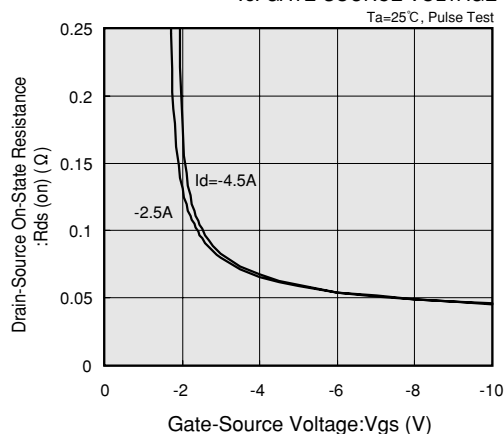
DRAIN CURRENT vs. DRAIN-SOURCE VOLTAGE



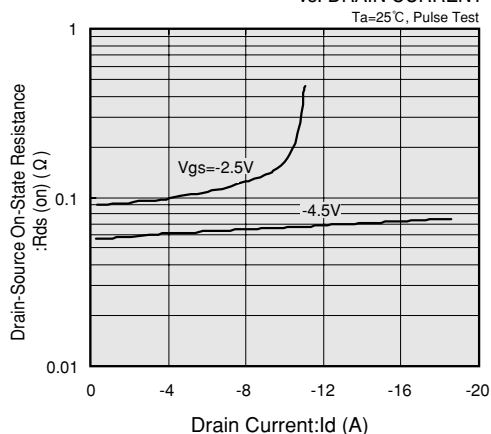
DRAIN CURRENT vs. GATE-SOURCE VOLTAGE



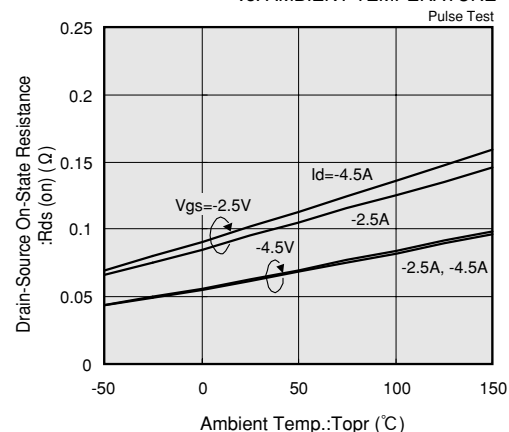
DRAIN-SOURCE ON-STATE RESISTANCE vs. GATE-SOURCE VOLTAGE



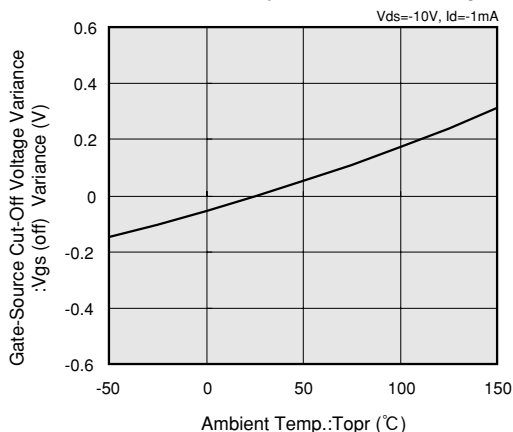
DRAIN-SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



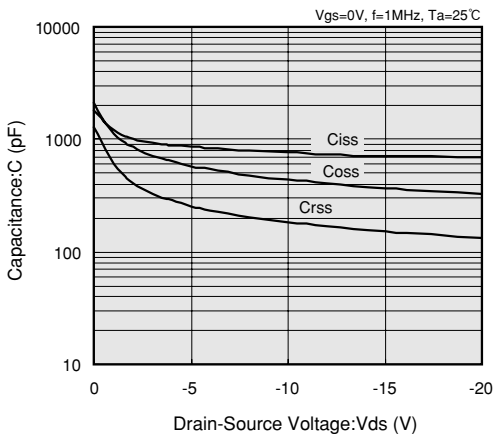
DRAIN-SOURCE ON-STATE RESISTANCE vs. AMBIENT TEMPERATURE



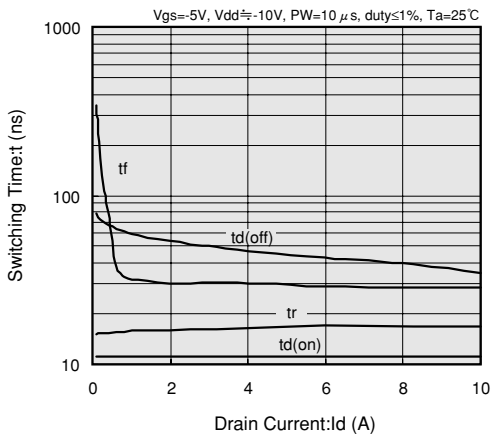
GATE-SOURCE CUT-OFF VOLTAGE VARIANCE vs. AMBIENT TEMPERATURE



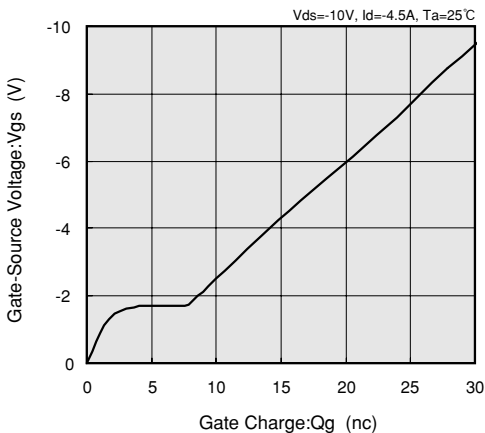
CAPACITANCE vs. DRAIN-SOURCE VOLTAGE



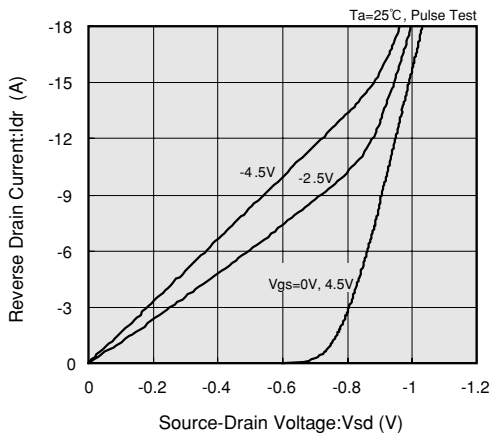
SWITCHING TIME vs. DRAIN CURRENT



GATE-SOURCE VOLTAGE vs. GATE CHARGE



REVERSE DRAIN CURRENT
vs. SOURCE-DRAIN VOLTAGE



STANDARDIZED TRANSITION THERMAL RESISTANCE vs. PULSE WIDTH

