

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.

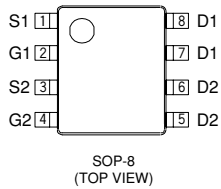
Applications

- 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

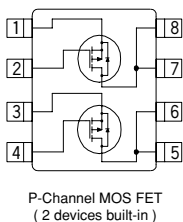
Pin Configuration



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

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

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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

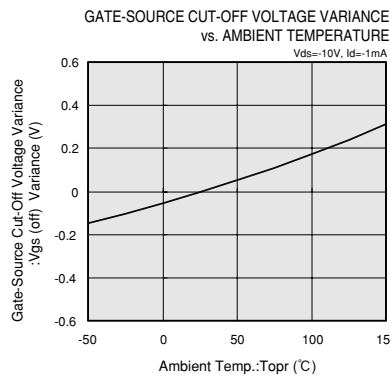
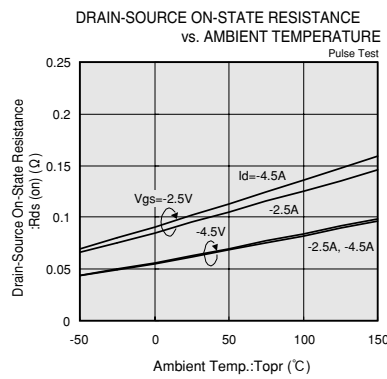
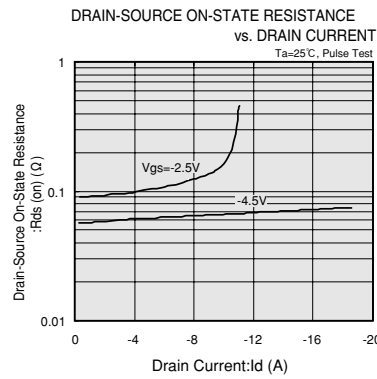
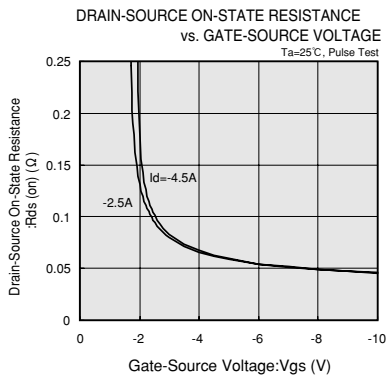
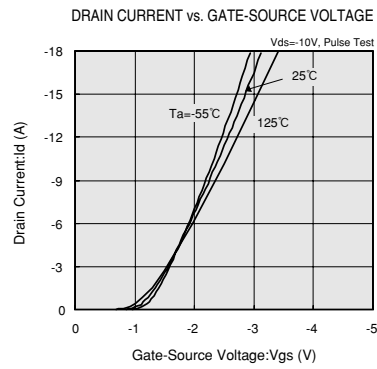
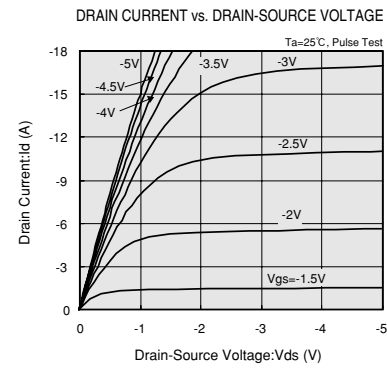
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS	
Turn-on Delay Time	t _{d (on)}	V _{gs} = -5V, I _d = -2.5A V _{dd} = -10V		15		ns	
Rise Time	t _r			20		ns	
Turn-off Delay Time	t _{d (off)}				55		ns
Fall Time	t _f				30		ns

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Thermal Characteristics

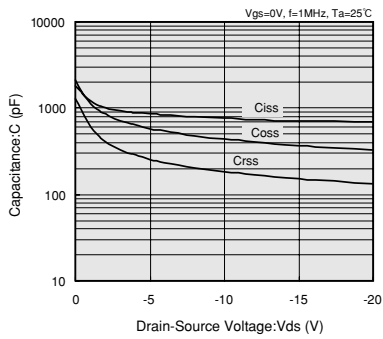
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Thermal Resistance (channel-ambience)	R _{th (ch-a)}	Implement on a glass epoxy resin PCB		62.5		°C / W

Typical Performance Characteristics

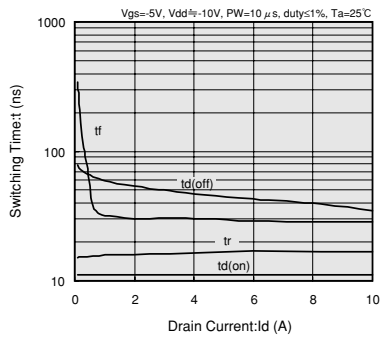


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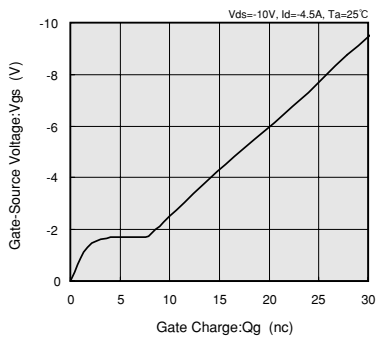
CAPACITANCE vs. DRAIN-SOURCE VOLTAGE



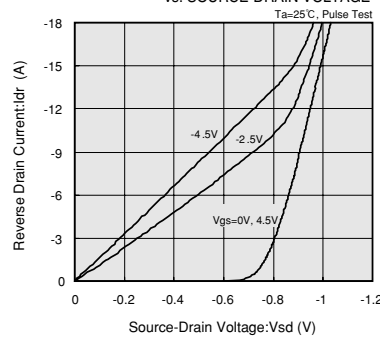
SWITCHING TIME vs. DRAIN CURRENT



GATE-SOURCE VOLTAGE vs. GATE CHARGE



REVERSE DRAIN CURRENT vs. SOURCE-DRAIN VOLTAGE



STANDARDIZED TRANSITION THERMAL RESISTANCE vs. PULSE WIDTH

