XP152A12C0MR

TOREX

Power MOS FET

◆P-Channel Power MOS FET
◆DMOS Structure
◆Low On-State Resistance : 0.3Ω (max)
◆Ultra High-Speed Switching
◆Gate Protect Diode Built-in
◆SOT-23 Package

■Applications

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

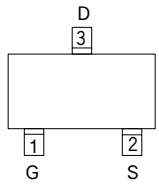
■General Description

The XP152A12C0MR is a P-Channel Power MOS FET with low on-state resistance and ultra high-speed switching characteristics.
Because high-speed switching is possible, the IC can be efficiently set thereby saving energy.
In order to counter static, a gate protect diode is built-in.
The small SOT-23 package makes high density mounting possible.

■Features

Low on-state resistance : Rds (on) = 0.3Ω (Vgs = -4.5V)
: Rds (on) = 0.5Ω (Vgs = -2.5V)
Ultra high-speed switching
Gate Protect Diode Built-in
Operational Voltage : -2.5V
High density mounting : SOT-23

■Pin Configuration



SOT-23
(TOP VIEW)

■Pin Assignment

PIN NUMBER	PIN NAME	FUNCTION
1	G	Gate
2	S	Source
3	D	Drain

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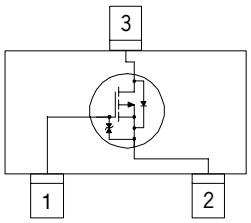
■Equivalent Circuit



P-Channel MOS FET
(1 device built-in)

■Absolute Maximum Ratings

Ta=25°C

PARAMETER	SYMBOL	RATINGS	UNITS
Drain - Source Voltage	Vdss	-20	V
Gate - Source Voltage	Vgss	±12	V
Drain Current (DC)	Id	-0.7	A
Drain Current (Pulse)	Idp	-2.8	A
Reverse Drain Current	Idr	-0.7	A
Continuous Channel Power Dissipation (note)	Pd	0.5	W
Channel Temperature	Tch	150	°C
Storage Temperature	Tstg	-55 ~ 150	°C

(note) : When implemented on a ceramic 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			±10	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 = - 0.4A , Vgs = - 4.5V		0.23	0.3	Ω
		Id = - 0.4A , Vgs = - 2.5V		0.37	0.5	Ω
Forward Transfer Admittance (note)	| Yfs |	Id = - 0.4A , Vds = - 10V		1.5		S
Body Drain Diode Forward Voltage	Vf	If = - 0.7A , Vgs = 0V		-0.8	- 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 = 1 MHz		180		pF
Output Capacitance	Coss			120		pF
Feedback Capacitance	Crss			60		pF

Switching Characteristics

Ta=25°C

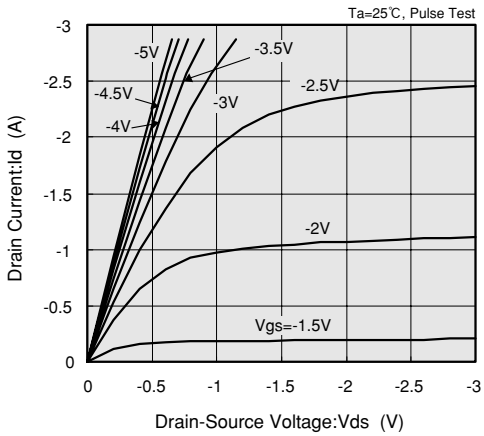
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Turn-on Delay Time	td (on)	Vgs = - 5V , Id = - 0.4A Vdd = - 10V		5		ns
Rise Time	tr			20		ns
Turn-off Delay Time	td (off)			55		ns
Fall Time	tf			70		ns

Thermal Characteristics

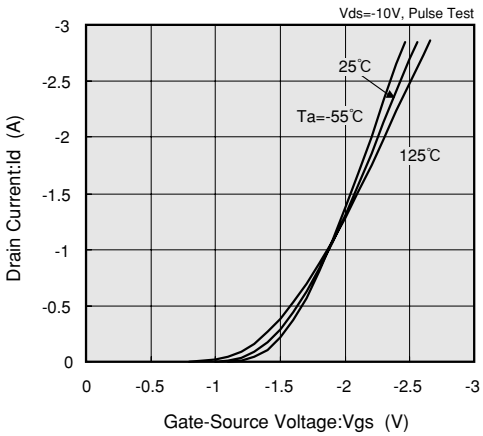
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Thermal Resistance (channel-ambience)	Rth (ch-a)	Implement on a ceramic PCB		250		°C / W

■Typical Performance Characteristics

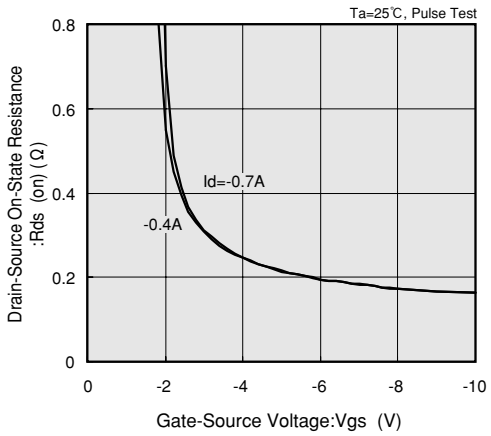
DRAIN CURRENT vs. DRAIN-SOURCE VOLTAGE



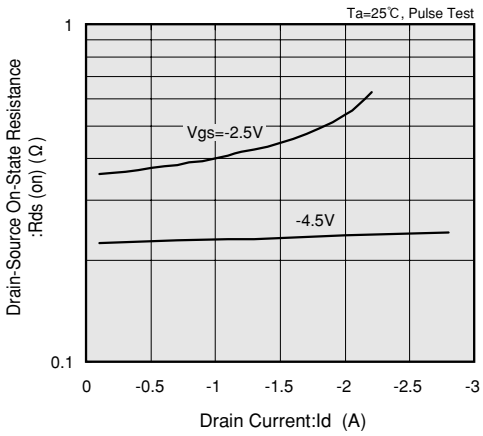
DRAIN CURRENT vs. GATE-SOURCE VOLTAGE



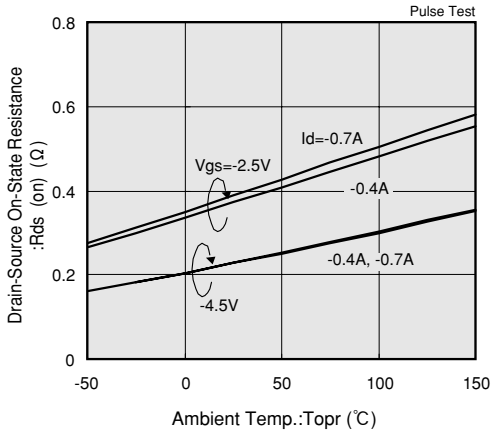
DRAIN-SOURCE ON-STATE RESISTANCE
vs. GATE-SOURCE VOLTAGE



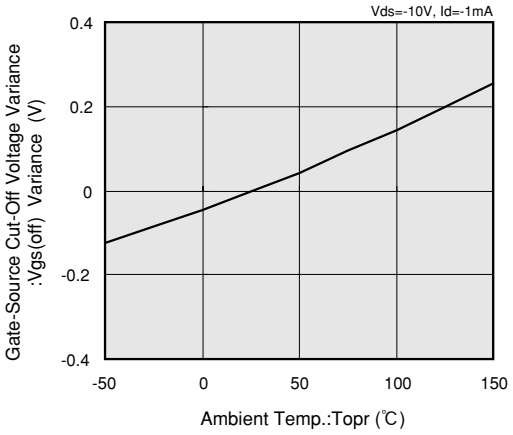
DRAIN-SOURCE ON-STATE RESISTANCE
vs. DRAIN CURRENT



DRAIN-SOURCE ON-STATE RESISTANCE
vs. AMBIENT TEMPERATURE



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



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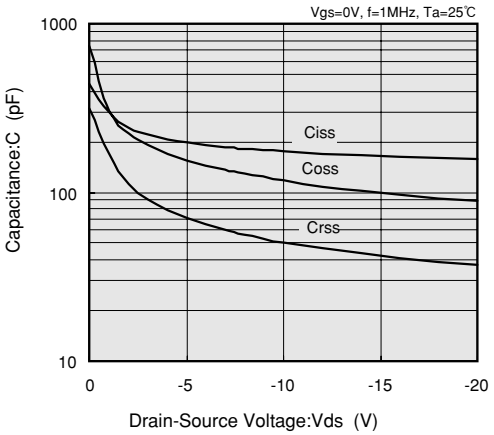
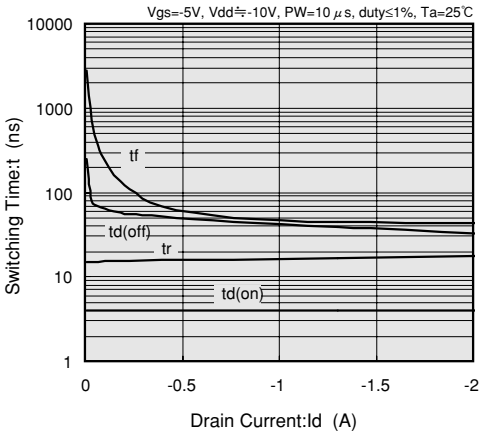
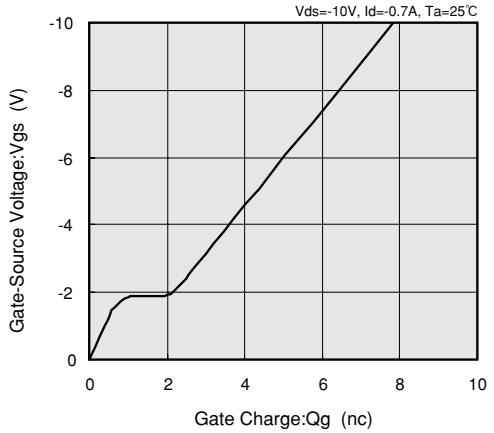
CAPACITANCE vs. DRAIN-SOURCE VOLTAGE



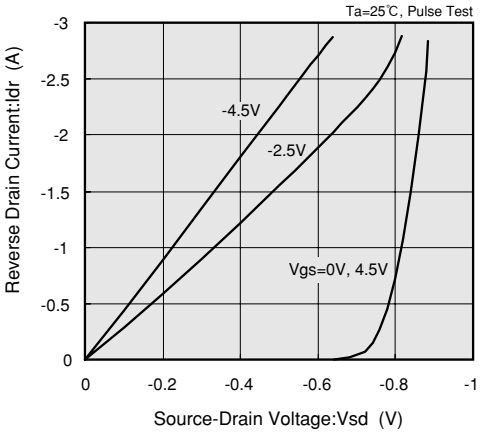
SWITCHING TIME vs. DRAIN CURRENT



GATE-SOURCE VOLTAGE vs. GATE CHARGE



REVERSE DRAIN CURRENT
vs. SOURCE-DRAIN VOLTAGE



STANDARDIZED TRANSITION THERMAL RESISTANCE vs. PULSE WIDTH