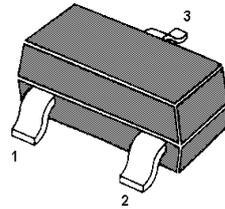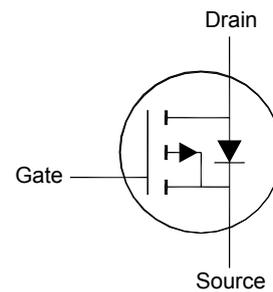# MMFTP2301

P-Channel Enhancement Mode MOSFET

1. Gate 2. Source 3. Drain
SOT-23 Plastic Package

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$-V_{DSS}$	20	V
Gate-Source Voltage	V_{GS}	± 8	V
Drain Current - Continuous	$-I_D$	2.3	A
Drain Current - Pulse[1]	$-I_{DM}$	8	A
Power Dissipation (t ≤ 10 s)	P_{tot}	0.9	W
Operating Junction Temperature	T_j	- 55 to + 150	$^{\circ}C$
Storage Temperature	T_{stg}	- 55 to + 150	$^{\circ}C$

[1] Repetitive Rating: Pulse width limited by maximum junction temperature.

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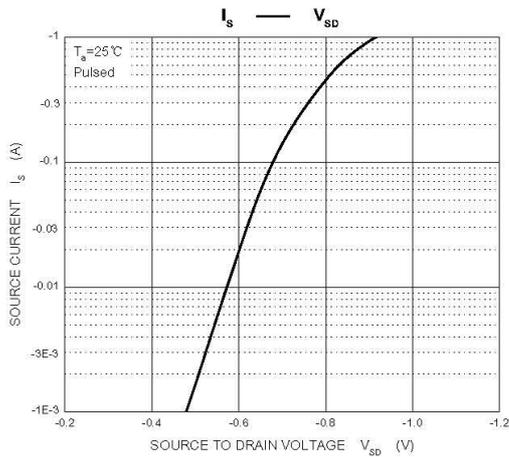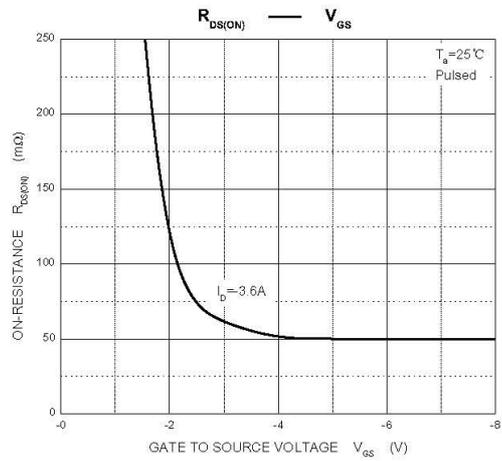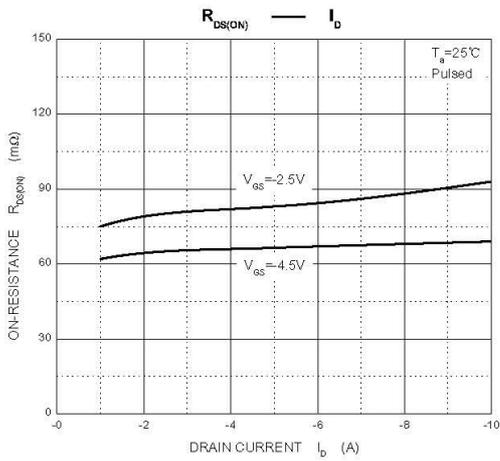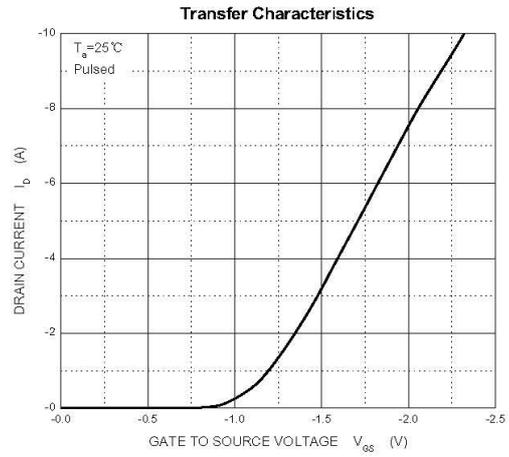
Characteristics at T_a= 25℃ unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage at $-I_D$ = 250 µA	$-V_{(BR)DSS}$	20	-	-	V
Drain-Source Leakage Current at $-V_{DS}$ = 9.6 V	$-I_{DSS}$	-	-	1	µA
Gate Leakage Current at V_{GS} = ± 8 V	I_{GSS}	-	-	± 100	nA
Gate-Source Threshold Voltage at V_{DS} = V_{GS}, $-I_D$ = 250 µA	$-V_{GS(th)}$	0.45	-	0.95	V
Drain-Source On-State Resistance at $-V_{GS}$ = 2.5 V, $-I_D$ = 2 A	$R_{DS(on)1}$	-	-	150	mΩ
Drain-Source On-State Resistance at $-V_{GS}$ = 4.5 V, $-I_D$ = 2.8 A	$R_{DS(on)2}$	-	-	100	mΩ
Forward Transconductance at $-V_{DS}$ = 5 V, $-I_D$ = 4 A	g_{FS}	-	6.5	-	S
Input Capacitance` at $-V_{DS}$ = 6 V, f = 1 MHz	C_{iss}	-	882.51	-	pF
Output Capacitance at $-V_{DS}$ = 6 V, f = 1 MHz	C_{oss}	-	145.54	-	pF
Reverse Transfer Capacitance at $-V_{DS}$ = 6 V, f = 1 MHz	C_{rss}	-	97.26	-	pF
Turn-On Delay Time at $-V_{DD}$ = 6 V, $-V_{GEN}$ = 4.5 V, $-I_D$ = 1 A, R_G = 6 Ω, R_L = 6 Ω	$t_{d(on)}$	-	17.28	-	ns
Turn-Off Delay Time at $-V_{DD}$ = 6 V, $-V_{GEN}$ = 4.5 V, $-I_D$ = 1 A, R_G = 6 Ω, R_L = 6 Ω	$t_{d(off)}$	-	36.05	-	ns
Turn-On Rise Time at $-V_{DD}$ = 6 V, $-V_{GEN}$ = 4.5 V, $-I_D$ = 1 A, R_G = 6 Ω, R_L = 6 Ω	t_r	-	3.73	-	ns
Turn-Off Fall Time at $-V_{DD}$ = 6 V, $-V_{GEN}$ = 4.5 V, $-I_D$ = 1 A, R_G = 6 Ω, R_L = 6 Ω	t_f	-	6.19	-	ns

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Output Characteristics

$T_a=25°C$
Pulsed

$V_{GS}=-4.0V,-3.5V,-3.0V,-2.5V$

$V_{GS}=-2.0V$

$V_{GS}=-1.5V$

$V_{GS}=-1.0V$

DRAIN CURRENT I_D (A)

DRAIN TO SOURCE VOLTAGE V_{DS} (V)

Transfer Characteristics

$T_a=25°C$
Pulsed

DRAIN CURRENT I_D (A)

GATE TO SOURCE VOLTAGE V_{GS} (V)

$R_{DS(ON)}$ —— I_D

$T_a=25°C$
Pulsed

$V_{GS}=-2.5V$

$V_{GS}=-4.5V$

ON-RESISTANCE $R_{DS(ON)}$ (mΩ)

DRAIN CURRENT I_D (A)

$R_{DS(ON)}$ —— V_{GS}

$T_a=25°C$
Pulsed

$I_D=3.6A$

ON-RESISTANCE $R_{DS(ON)}$ (mΩ)

GATE TO SOURCE VOLTAGE V_{GS} (V)

I_S —— V_{SD}

$T_a=25°C$
Pulsed

SOURCE CURRENT I_S (A)

SOURCE TO DRAIN VOLTAGE V_{SD} (V)

TOP DYNAMIC

Dated: 28/04/2014   Rev: 05 CL