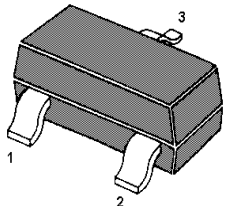
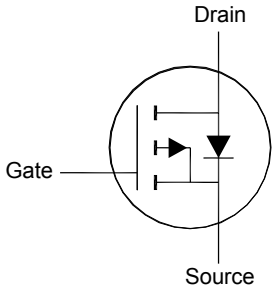
MMFTP2307

P-Channel Enhancement Mode MOSFET



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



Absolute Maximum Ratings(T_a = 25℃)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$-V_{DS}$	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current - Continuous(T_J = 150℃) [1) 2)] T_A = 25℃ T_A = 70℃	$-I_D$	2.7 [1) 2)] 2.2 [1) 2)]	A
Drain Current - Pulse(10 us Pulse Width)	$-I_{DM}$	12	A
Continuous Source-Drain Diode Current [1) 2)]	$-I_S$	0.91 [1) 2)]	A
Power Dissipation [1) 2)] T_A = 25℃ T_A = 70℃	P_D	1.1 [1) 2)] 0.7 [1) 2)]	W
Operating Junction Temperature Range	T_j	- 55 to + 150	℃
Storage Temperature Range	T_{stg}	- 55 to + 150	℃

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Juntion to Ambient at t ≤ 5 s [1) 3)]	$R_{\theta JA}$	115	℃/W

[1)] Surface Mounted on 1" x 1" FR4 board.

[2)] t = 5 s.

[3)] Maximum under Steady State conditions is 166℃/W.

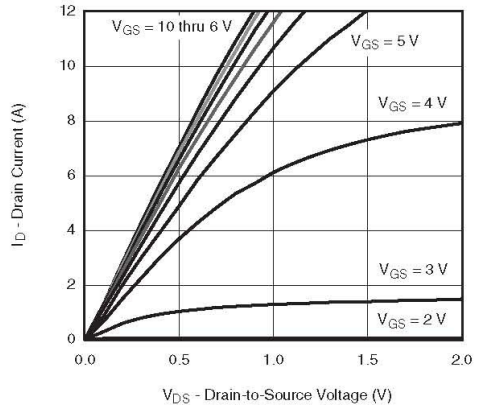
Characteristics at T_a= 25℃ unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage at $-I_D$ = 250 μA	$-V_{DS}$	30	-	-	V
Zero Gate Voltage Drain Current at $-V_{DS}$ = 30 V	$-I_{DSS}$	-	-	1	μA
Gate-Source Leakage at V_{GS} = ± 20 V	$-I_{GSS}$	-	-	100	nA
On state drain current [1)] at $-V_{GS}$ = 10 V,V_{DS} = 5 V	$-I_{D(ON)}$	6	-	-	A
Gate-Source Threshold Voltage at V_{DS} = V_{GS}, $-I_D$ = 250 μA	$-V_{GS(th)}$	1	-	3	V
Drain-Source On-State Resistance [1)] at $-V_{GS}$ = 10 V, $-I_D$ = 3.5 A	$R_{DS(on)1}$	-	-	88	mΩ
Drain-Source On-State Resistance [1)] at $-V_{GS}$ = 4.5 V, $-I_D$ = 2.5 A	$R_{DS(on)2}$	-	-	138	mΩ
Forward Transconductance [1)] at $-V_{DS}$ = 10 V,$-I_D$ =3.5 A	g_{FS}	-	7	-	S
Input Capacitance at $-V_{DS}$ = 15 V, f = 1 MHz	C_{iss}	-	340	-	pF
Output Capacitance at $-V_{DS}$ = 15 V, f = 1 MHz	C_{oss}	-	67	-	pF
Reverse Transfer Capacitance at $-V_{DS}$ = 15 V, f = 1 MHz	C_{rss}	-	51	-	pF
Turn-On Delay Time at $-V_{DD}$ = 15 V, $-V_{GEN}$ = 4.5 V, $-I_D$ = 1 A, R_G = 1 Ω, R_L = 15 Ω at $-V_{DD}$ = 15 V, $-V_{GEN}$ = 10 V, $-I_D$ = 1 A, R_G = 1 Ω, R_L = 15 Ω	$t_{d(on)}$	- -	- -	60 10	ns
Turn-Off Delay Time at $-V_{DD}$ = 15 V, $-V_{GEN}$ = 4.5 V, $-I_D$ = 1 A, R_G = 1 Ω, R_L = 15 Ω at $-V_{DD}$ = 15 V, $-V_{GEN}$ = 10 V, $-I_D$ = 1 A, R_G = 1 Ω, R_L = 15 Ω	$t_{d(off)}$	- -	- -	40 30	ns
Turn-On Rise Time at $-V_{DD}$ = 15 V, $-V_{GEN}$ = 4.5 V, $-I_D$ = 1 A, R_G = 1 Ω, R_L = 15 Ω at $-V_{DD}$ = 15 V, $-V_{GEN}$ = 10 V, $-I_D$ = 1 A, R_G = 1 Ω, R_L = 15 Ω	t_r	- -	- -	60 25	ns
Turn-Off Fall Time at $-V_{DD}$ = 15 V, $-V_{GEN}$ = 4.5 V, $-I_D$ = 1 A, R_G = 1 Ω, R_L = 15 Ω at $-V_{DD}$ = 15 V, $-V_{GEN}$ = 10 V, $-I_D$ = 1 A, R_G = 1 Ω, R_L = 15 Ω	t_f	- -	- -	30 15	ns

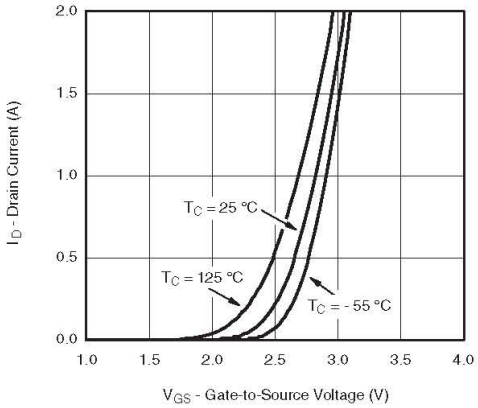
[1)] Pulse test;pulse width≤ 300 us,duty cycle ≤ 2 %.

Drain-Source Body Diode Characteristics at T_a= 25℃

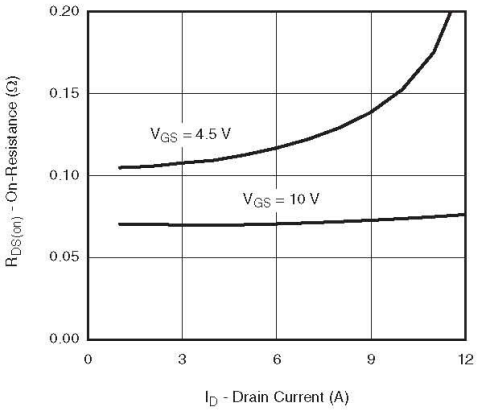
Parameter	Symbol	Min.	Typ.	Max.	Unit
Continuous Source-Drain Diode Current(T_C = 25℃)	I_S	-	-	1.5	A
Pulsed Diode Forward Current	I_{SM}	-	-	12	A
Body Diode Voltage at $-I_S$ = 0.75 A,V_{GS}= 0 V	V_{SD}	-	-	1.2	V



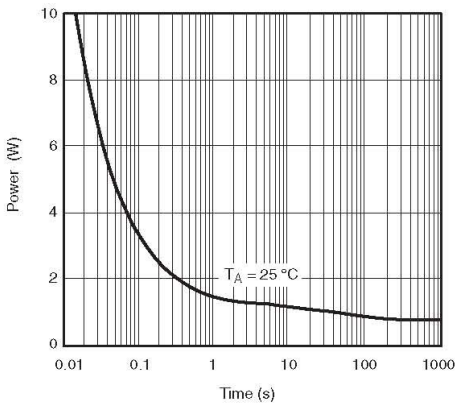
Output Characteristics



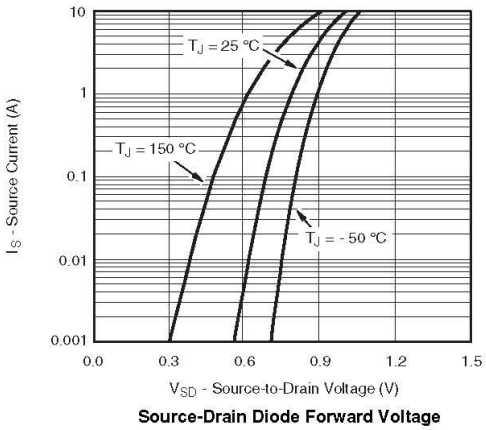
Transfer Characteristics



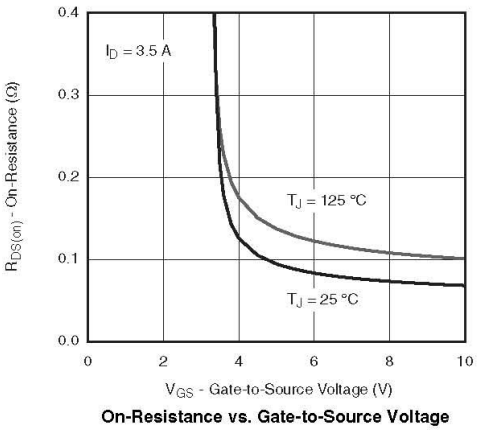
On-Resistance vs. Drain Current and Gate Voltage



Single Pulse Power, Junction-to-Ambient



Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage