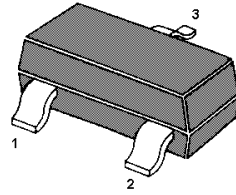
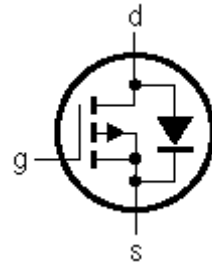


MMFTP3401

P-Channel Enhancement Mode MOSFET



1. Gate 2. Source 3. Drain
TO-236 Plastic Package



Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$-V_{DS}$	30	V
Gate-Source Voltage	V_{GS}	± 12	V
Drain Current	$-I_D$	$T_A = 25^\circ\text{C}$ 4 $T_A = 70^\circ\text{C}$ 3.2	A
Peak Drain Current ¹⁾	$-I_{DM}$	27	A
Power Dissipation ²⁾	P_D	$T_A = 25^\circ\text{C}$ 1.4 $T_A = 70^\circ\text{C}$ 0.9	W
Junction and Storage Temperature Rang	T_J, T_{stg}	- 55 to + 150	$^\circ\text{C}$

¹⁾ Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)} = 150^\circ\text{C}$. Ratings are based on low frequency and duty cycles to keep initial $T_J = 25^\circ\text{C}$

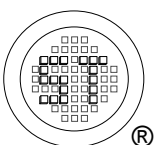
²⁾ The power dissipation P_D is based on $T_{J(MAX)} = 150^\circ\text{C}$, using ≤ 10 s Junction to ambient thermal resistance.

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Maximum Thermal Resistance from Junction to Ambient at $t \leq 10\text{s}$ ¹⁾ at steady-state ^{1) 2)}	$R_{\theta JA}$	90 125	$^\circ\text{C/W}$

¹⁾ The value of $R_{\theta JA}$ is measured with the device mounted on 1in²FR-4 board with 2 oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$. The value in any given application depends on the user's specific board design.

²⁾ The $R_{\theta JA}$ is the sum of the thermal impedance from junction to lead $R_{\theta JL}$ and lead to ambient.



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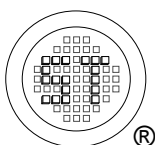
IECQ QC 080000
Certificate No. PRC-18P4-1483-1

MMFTP3401

Characteristics at $T_j = 25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage at $-I_D = 250 \mu\text{A}$	$-BV_{DSS}$	30	-	-	V
Gate-Source Threshold Voltage at $V_{DS} = V_{GS}$, $-I_D = 250 \mu\text{A}$	$-V_{GSth}$	0.5	-	1.3	V
Drain-Source Leakage Current at $-V_{DS} = 30 \text{ V}$ at $-V_{DS} = 30 \text{ V}$, $T_j = 55^\circ\text{C}$	$-I_{DSS}$	-	-	1 5	μA
Gate Leakage Current at $V_{GS} = \pm 12 \text{ V}$	I_{GSS}	-	-	± 100	nA
On state drain current at $-V_{GS} = 10 \text{ V}$, $V_{DS} = 5 \text{ V}$	$-I_{D(ON)}$	27	-	-	A
Drain-Source On-State Resistance at $-V_{GS} = 10 \text{ V}$, $-I_D = 4 \text{ A}$ at $-V_{GS} = 4.5 \text{ V}$, $-I_D = 3.7 \text{ A}$ at $-V_{GS} = 2.5 \text{ V}$, $-I_D = 2 \text{ A}$	$R_{DS(on)}$	-	-	50 60 85	m Ω
Forward Transconductance at $-V_{DS} = 5 \text{ V}$, $-I_D = 4 \text{ A}$	$ g_{FS} $	-	17	-	S
Diode Forward Voltage at $I_S = 1 \text{ A}$, $V_{GS} = 0 \text{ V}$	$-V_{SD}$	0.7	-	1	V
Maximum Body-Diode Continuous Current	$-I_S$	-	-	2	A
Pulsed Body-Diode Current ¹⁾	$-I_{SM}$	-	-	27	A
Input Capacitance at $V_{GS} = 0 \text{ V}$, $-V_{DS} = 15 \text{ V}$ $f = 1 \text{ MHz}$	C_{iss}	-	645	-	pF
Output Capacitance at $V_{GS} = 0 \text{ V}$, $-V_{DS} = 15 \text{ V}$ $f = 1 \text{ MHz}$	C_{oss}	-	80	-	pF
Reverse Transfer Capacitance at $V_{GS} = 0 \text{ V}$, $-V_{DS} = 15 \text{ V}$ $f = 1 \text{ MHz}$	C_{rss}	-	55	-	pF
Turn-On Delay Time at $-V_{GS} = 10 \text{ V}$, $-V_{DS} = 15 \text{ V}$, $R_L = 3.75 \Omega$, $R_G = 3 \Omega$	t_{on}	-	6.5	-	ns
Turn-On Rise Time at $-V_{GS} = 10 \text{ V}$, $-V_{DS} = 15 \text{ V}$, $R_L = 3.75 \Omega$, $R_G = 3 \Omega$	t_r	-	3.5	-	ns
Turn-Off Delay Time at $-V_{GS} = 10 \text{ V}$, $-V_{DS} = 15 \text{ V}$, $R_L = 3.75 \Omega$, $R_G = 3 \Omega$	t_{off}	-	41	-	ns
Turn-Off Fall Time at $-V_{GS} = 10 \text{ V}$, $-V_{DS} = 15 \text{ V}$, $R_L = 3.75 \Omega$, $R_G = 3 \Omega$	t_{off}	-	9	-	ns

¹⁾ The power dissipation P_D is based on $T_{J(MAX)} = 150^\circ\text{C}$. using $\leq 10 \text{ s}$ Junction to ambient thermal resistance.



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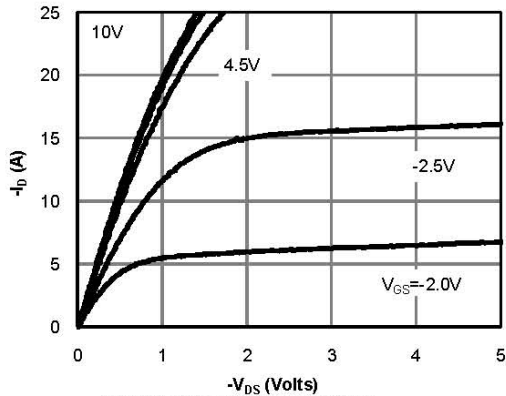


Fig 1: On-Region Characteristics

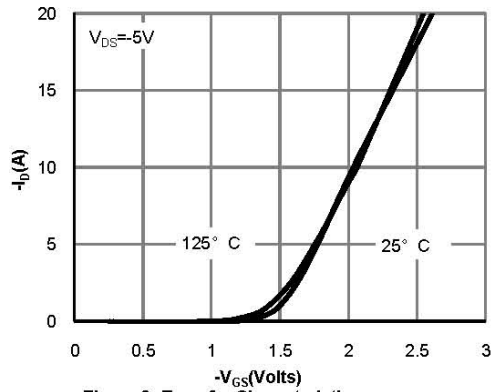


Figure 2: Transfer Characteristics

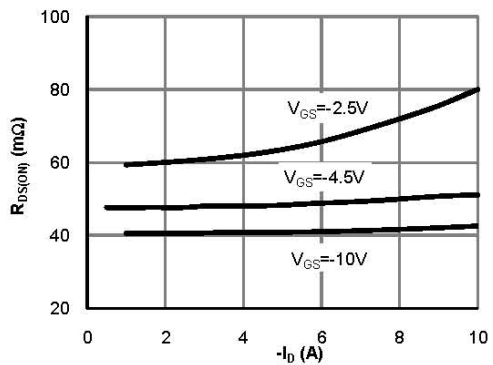


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

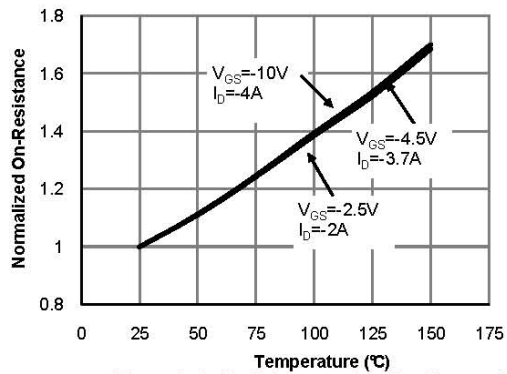


Figure 4: On-Resistance vs. Junction Temperature

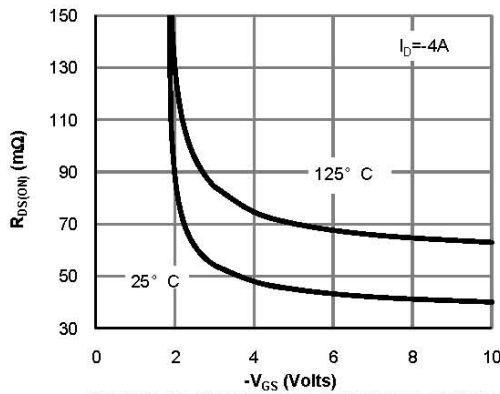


Figure 5: On-Resistance vs. Gate-Source Voltage

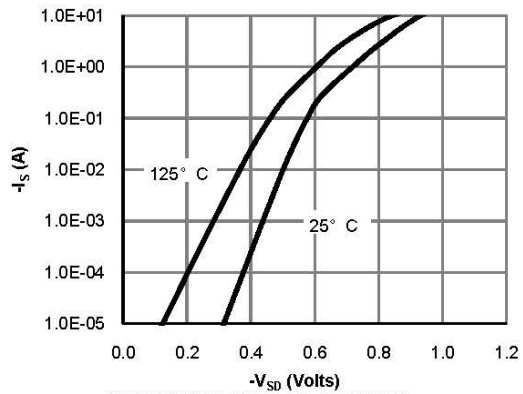
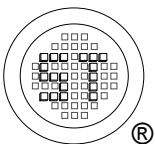


Figure 6: Body-Diode Characteristics



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