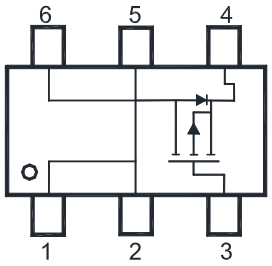
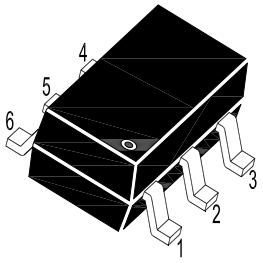
MMFTP3443D

P-Channel Enhancement Mode MOSFET

Applications

- Protable appliances
- Battery management





1. Drain 2. Drain 3. Gate
4. Source 5. Drain 6. Drain
SOT-26 Plastic Package

Absolute Maximum Ratings(T_a = 25℃)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		$-V_{DS}$	20	V
Gate-Source Voltage		V_{GS}	± 12	V
Drain Current - Continuous (T_J = 150℃)	T_C = 25℃ T_C = 70℃	$-I_D$	5.97 4.6	A
Peak Drain Current, Pulsed [1]		$-I_{DM}$	20	A
Power Dissipation	T_C = 25℃ T_C = 70℃	P_D	3.2 2.05	W
Operating Junction Temperature Range		T_j	- 55 to + 150	℃
Storage Temperature Range		T_{stg}	- 55 to + 150	℃

Thermal Characteristics

Parameter		Symbol	Value	Unit
Thermal Resistance from Juntion to Ambient [2]	t ≤ 5 s	$R_{\theta JA}$	62.5	℃/W

[1] Pulse Test: Pulse Width ≤ 100 μs,Duty Cycle ≤ 2%,Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$ = 150°C.

[2] Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate in still air.

Dated: 12/11/2020 Rev: 02

Characteristics at T_a = 25℃

Parameter	Symbol	Min.	Typ.	Max.	Unit
STATIC PARAMETERS					
Drain-Source Voltage at $-I_D$ = 250 µA	$-V_{DS}$	20	-	-	V
Zero Gate Voltage Drain Current at $-V_{DS}$ = 20 V	$-I_{DSS}$	-	-	1	µA
Gate-Source Leakage at V_{GS} = ± 12 V	I_{GSS}	-	-	± 100	nA
Gate-Source Threshold Voltage at $-I_D$ = 250 µA	$-V_{GS(th)}$	0.4	-	1.2	V
Drain-Source On-State Resistance at $-V_{GS}$ = 4.5 V, $-I_D$ = 4.7 A at $-V_{GS}$ = 2.7 V, $-I_D$ = 3.9 A at $-V_{GS}$ = 2.5 V, $-I_D$ = 3.4 A	$R_{DS(on)}$	- - -	- - -	60 84 100	mΩ
DYNAMIC PARAMETERS					
Forward Transconductance at $-V_{DS}$ = 10 V, $-I_D$ = 4.7 A	g_{FS}	2	-	-	S
Input Capacitance at $-V_{DS}$ = 10 V, V_{GS} = 0 V, f = 1 MHz	C_{iss}	-	535	-	pF
Output Capacitance at $-V_{DS}$ = 10 V, V_{GS} = 0 V, f = 1 MHz	C_{oss}	-	87	-	pF
Reverse Transfer Capacitance at $-V_{DS}$ = 10 V, V_{GS} = 0 V, f = 1 MHz	C_{rss}	-	82	-	pF
Total Gate Charge at $-V_{DS}$ = 10 V, $-V_{GS}$ = 4.5 V, $-I_D$ = 2.5 A	Q_g	-	6.5	-	nC
Gate-Source Charge at $-V_{DS}$ = 10 V, $-V_{GS}$ = 4.5 V, $-I_D$ = 2.5 A	Q_{gs}	-	1.8	-	nC
Gate-Drain Charge at $-V_{DS}$ = 10 V, $-V_{GS}$ = 4.5 V, $-I_D$ = 2.5 A	Q_{gd}	-	1.6	-	nC
Turn-On Delay Time at $-V_{DD}$ = 10 V, $-V_{GEN}$ = 4.5 V, $-I_D$ = 2.5 A, R_G = 4.5 Ω	$t_{d(on)}$	-	10	-	ns
Turn-On Rise Time at $-V_{DD}$ = 10 V, $-V_{GEN}$ = 4.5 V, $-I_D$ = 2.5 A, R_G = 4.5 Ω	t_r	-	43	-	ns
Turn-Off Delay Time at $-V_{DD}$ = 10 V, $-V_{GEN}$ = 4.5 V, $-I_D$ = 2.5 A, R_G = 4.5 Ω	$t_{d(off)}$	-	105	-	ns
Turn-Off Fall Time at $-V_{DD}$ = 10 V, $-V_{GEN}$ = 4.5 V, $-I_D$ = 2.5 A, R_G = 4.5 Ω	t_f	-	73	-	ns
Body-Diode PARAMETERS					
Drain-Source Diode Forward Voltage at $-I_S$ = 2.5 A, V_{GS} = 0 V	$-V_{SD}$	-	-	1.2	V
Body Diode Reverse Recovery Time at $-I_S$ = 2.5 A, di/dt = 100 A / µs	t_{rr}	-	35	-	ns
Body Diode Reverse Recovery Charge at $-I_S$ = 2.5 A, di/dt = 100 A / µs	Q_{rr}	-	14	-	nC

Electrical Characteristics Curves

Fig. 1 Output Characteristic

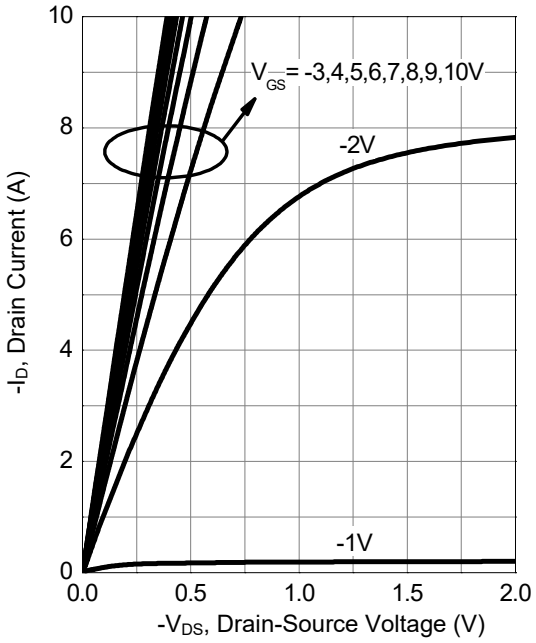


Fig. 2 Transfer Characteristics

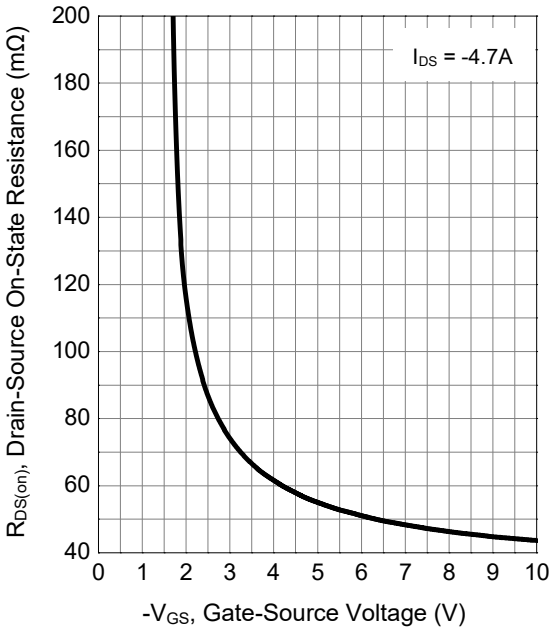


Fig. 3 On-Resistance vs. Drain Current

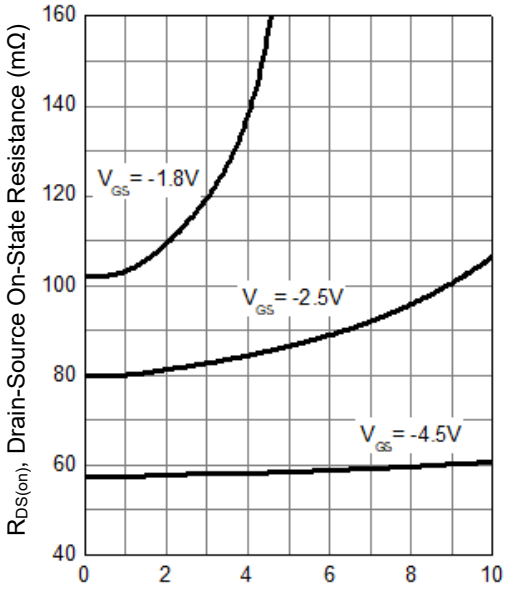
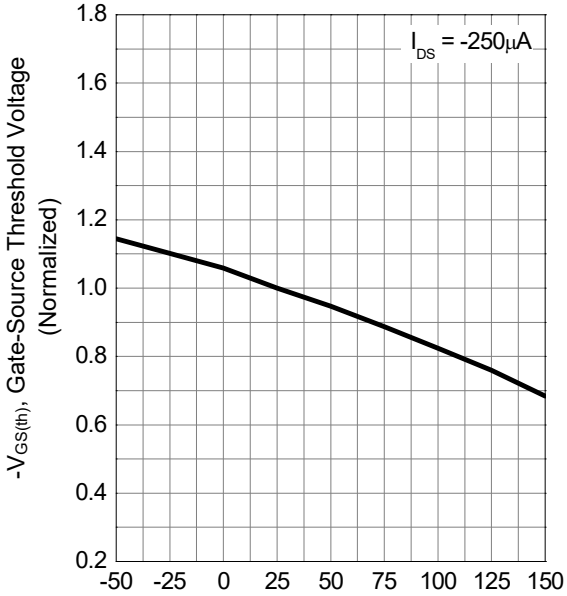


Fig. 4 Gate-Source Threshold Voltage vs. T_j



Electrical Characteristics Curves

Fig. 5 On-Resistance vs. Junction Temperature

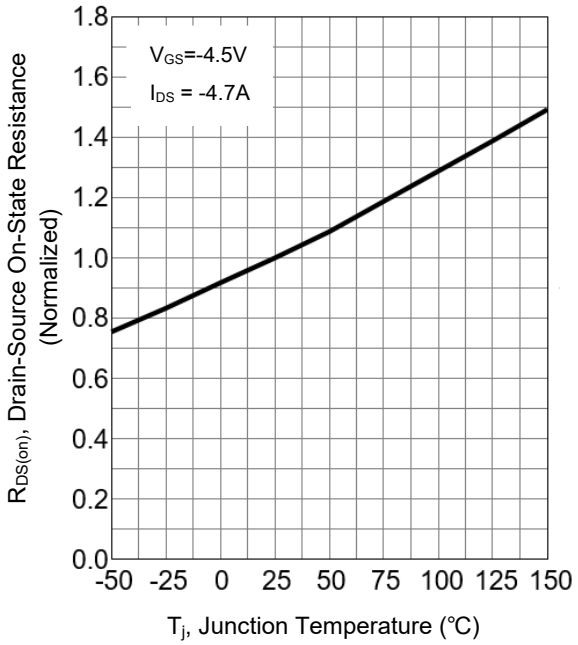


Fig. 6 Typical Forward Characteristic

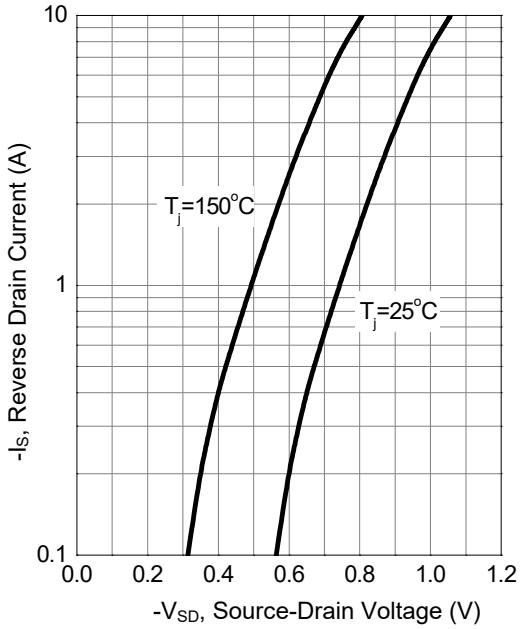


Fig. 7 Capacitance Characteristic

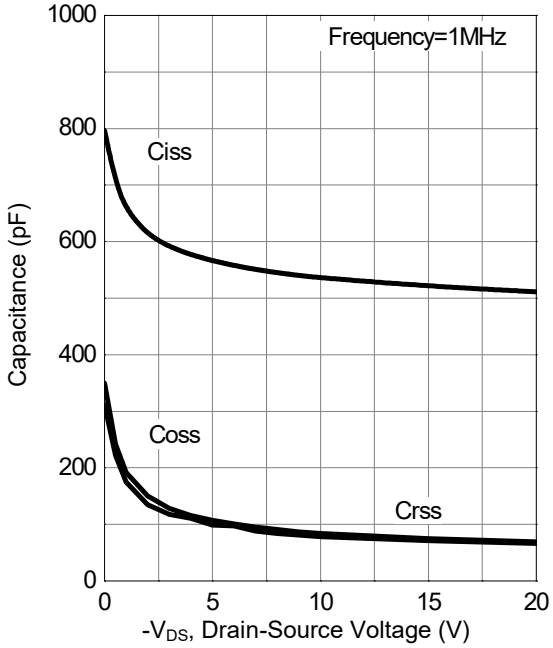
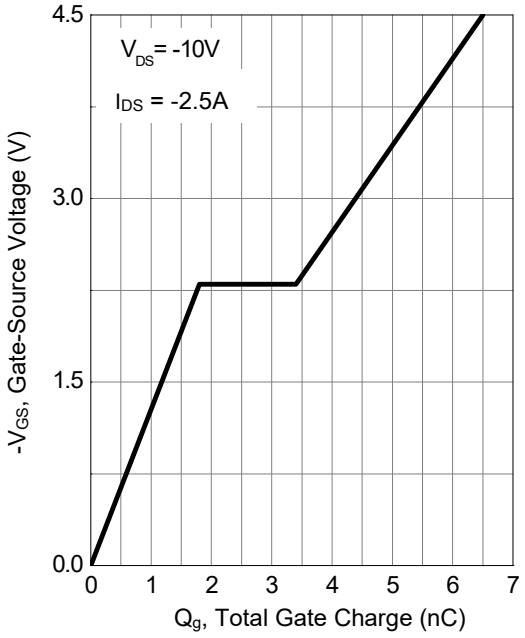


Fig. 8 Gate Charge



Test Circuits

Fig.1-1 Switching times test circuit

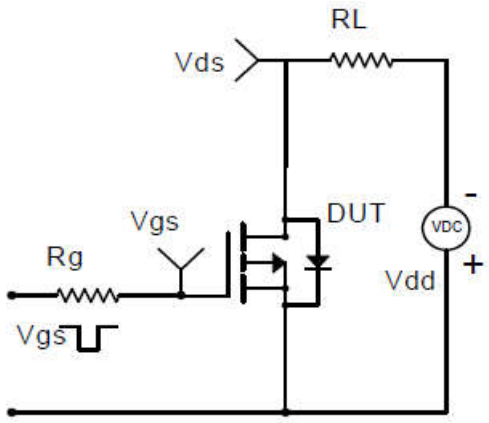


Fig.1-2 Switching Waveform

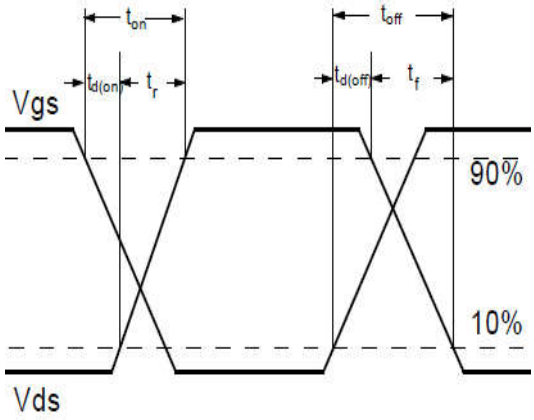


Fig.2-1 Gate charge test circuit

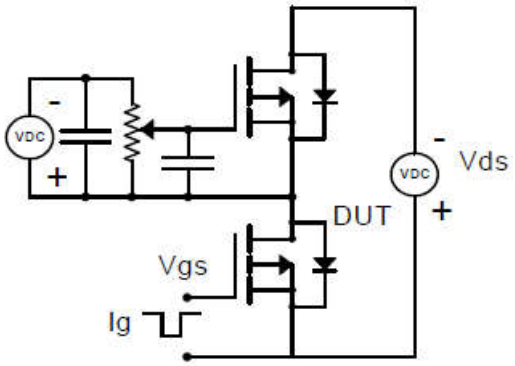
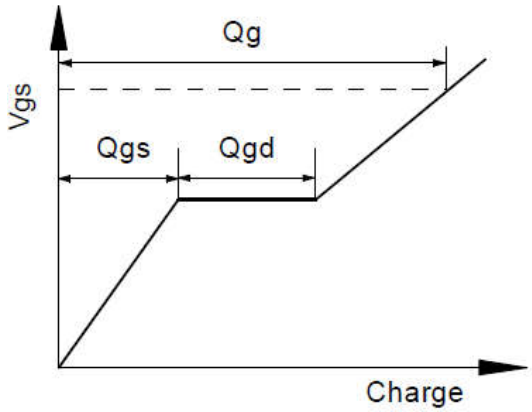
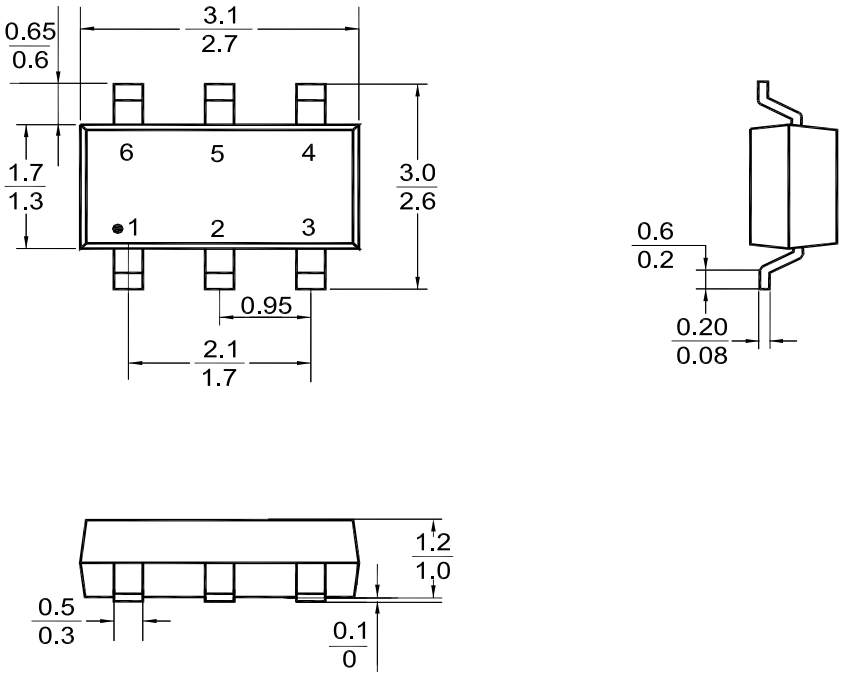


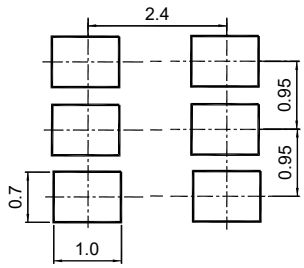
Fig.2-2 Gate charge waveform



Package Outline Dimensions (Units: mm) SOT-26



Recommended Soldering Footprint



Packing information

Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
SOT-26	8	4 ± 0.1	0.157 ± 0.004	178	7	3,000

Marking information

" WA " = Part No.
"YM" = Date Code Marking
"Y" = Year
"M" = Month
Font type: Arial