

MMFTP84

P-Channel Enhancement Mode Vertical D-MOS Transistor

Features

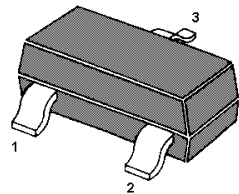
- Low threshold voltage
- Direct interface to C-MOS, TTL, etc.
- High-speed switching
- No secondary breakdown

Applications

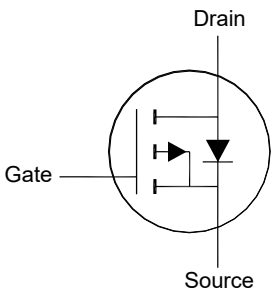
- Line current interrupter in telephone sets
- Relay, high speed and line transformer drivers

Caution

- The device is supplied in an antistatic package
- The gate-source input must be protected against static discharge during transport or handling



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



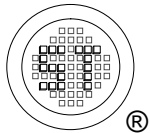
Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$-V_{DS}$	60	V
Gate-Source Voltage	V_{GSO}	± 20	V
Drain Current	$-I_D$	130	mA
Peak Drain Current, Pulsed	$-I_{DM}$	520	mA
Total Power Dissipation at $T_{amb} \leq 25^\circ\text{C}$	P_{tot}	250 ¹⁾	mW
Operating Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 65 to + 150	$^\circ\text{C}$

Thermal Characteristics

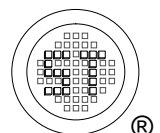
Parameter	Symbol	Value	Unit
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	500 ¹⁾	$^\circ\text{C/W}$

¹⁾ Device mounted on a printed-circuit board.



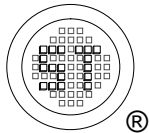
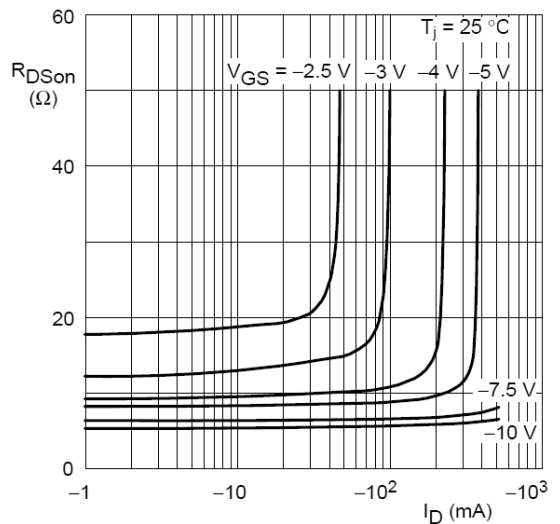
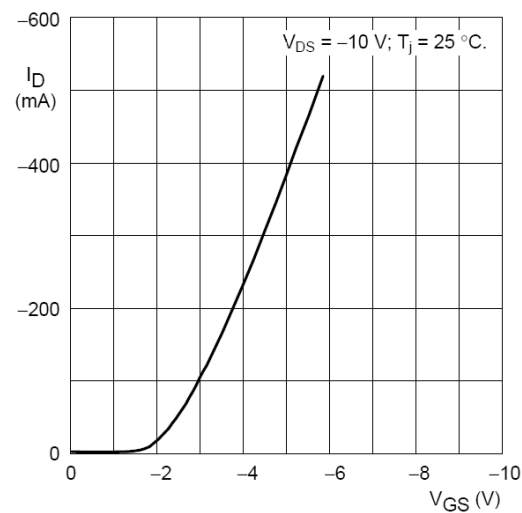
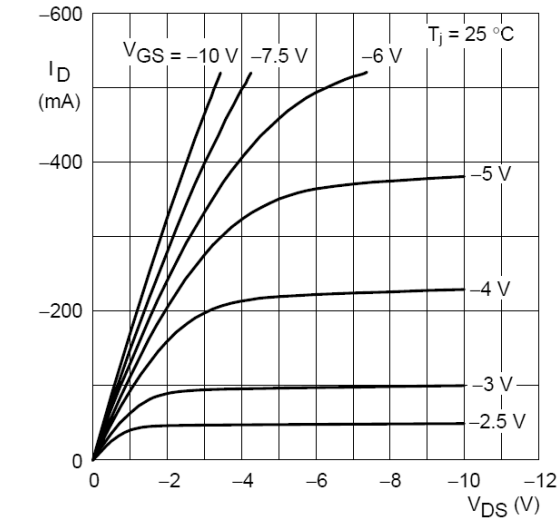
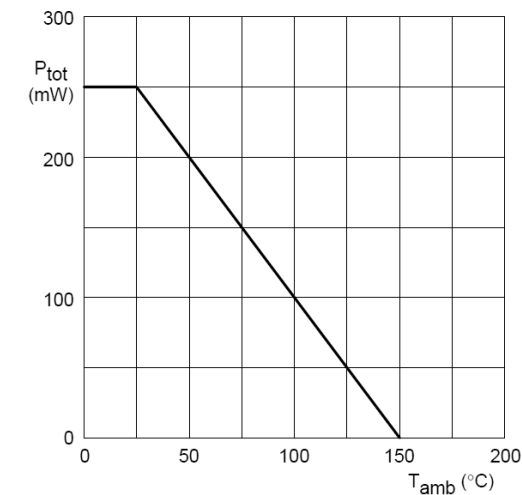
Characteristics at $T_j = 25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit
STATIC PARAMETERS					
Drain-Source Breakdown Voltage at $-I_D = 10\ \mu\text{A}$	$-V_{(BR)DSS}$	60	-	-	V
Drain-Source Leakage Current at $-V_{DS} = 40\ \text{V}$ at $-V_{DS} = 60\ \text{V}$ at $-V_{DS} = 60\ \text{V}$, $T_j = 125^\circ\text{C}$	$-I_{DSS}$	- - -	- - -	100 10 60	nA μA μA
Gate Leakage Current at $V_{GS} = \pm 20\ \text{V}$	I_{GSS}	-	-	± 10	nA
Gate-Source Threshold Voltage at $V_{DS} = V_{GS}$, $-I_D = 1\ \text{mA}$	$-V_{GS(th)}$	0.8	-	2	V
Drain-Source On-State Resistance at $-V_{GS} = 10\ \text{V}$, $-I_D = 130\ \text{mA}$	$R_{DS(on)}$	-	-	10	Ω
Forward Transfer admittance at $-V_{DS} = 25\ \text{V}$, $-I_D = 130\ \text{mA}$	$ y_{fs} $	50	-	-	mS
DYNAMIC PARAMETERS					
Input Capacitance at $-V_{DS} = 25\ \text{V}$, $f = 1\ \text{MHz}$	C_{iss}	-	-	45	pF
Output Capacitance at $-V_{DS} = 25\ \text{V}$, $f = 1\ \text{MHz}$	C_{oss}	-	-	25	pF
Reverse Transfer Capacitance at $-V_{DS} = 25\ \text{V}$, $f = 1\ \text{MHz}$	C_{rss}	-	-	12	pF
Turn-On Time at $V_{GS} = 0$ to $-10\ \text{V}$, $-V_{DD} = 40\ \text{V}$, $-I_D = 200\ \text{mA}$	$t_{d(on)}$	-	3	-	ns
Turn-Off Time at $V_{GS} = -10$ to $0\ \text{V}$, $-V_{DD} = 40\ \text{V}$, $-I_D = 200\ \text{mA}$	$t_{d(off)}$	-	7	-	ns



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Ratings and Electrical Characteristics Curves



Test Circuits

Fig.1-1 Switching times test circuit

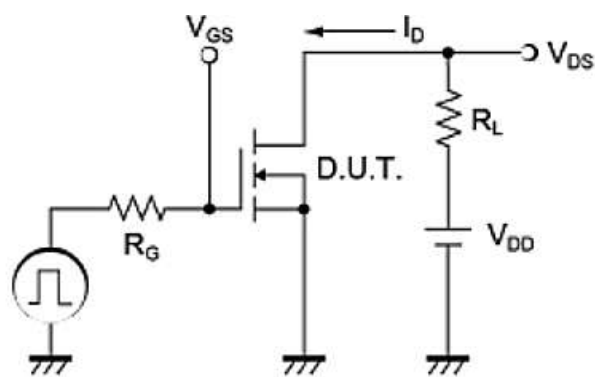


Fig.1-2 Switching Waveform

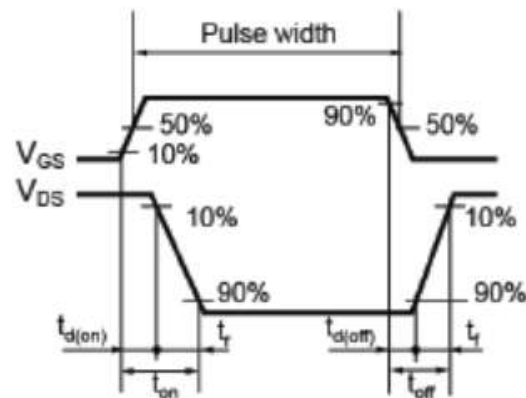


Fig.2-1 Gate charge test circuit

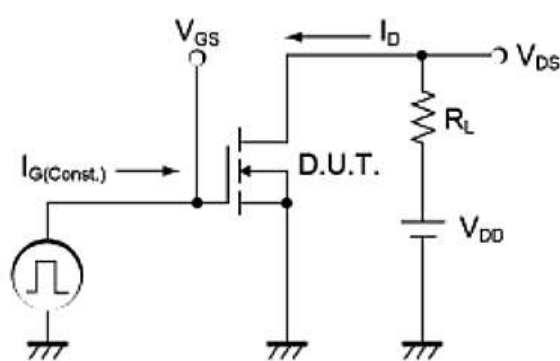
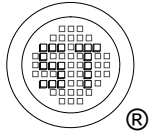
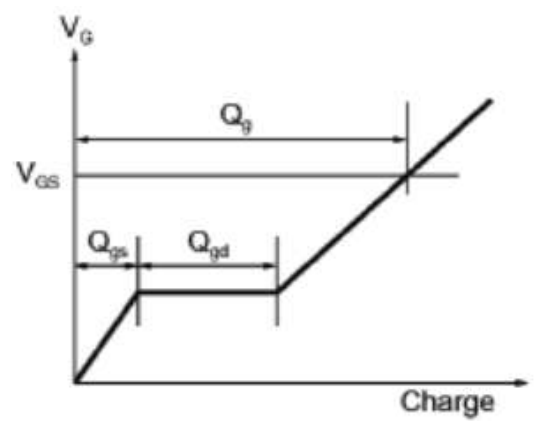


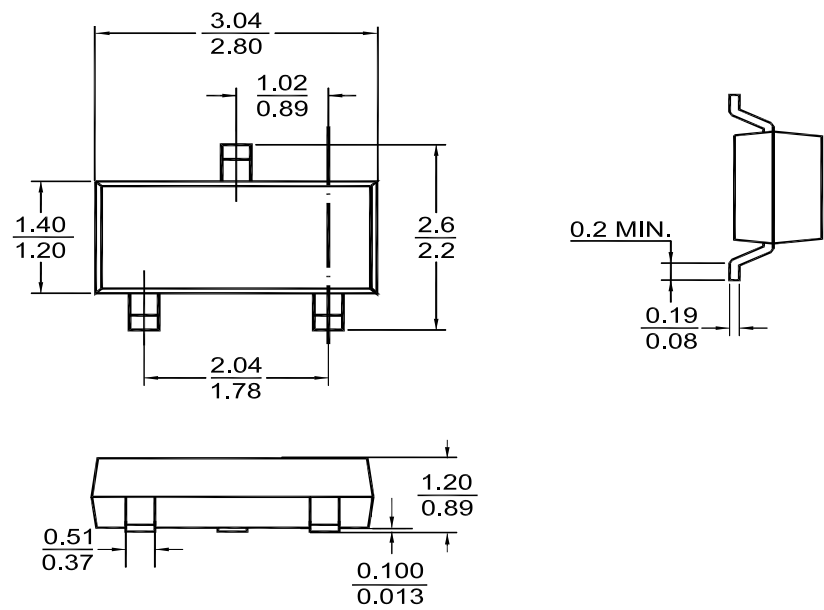
Fig.2-2 Gate charge waveform



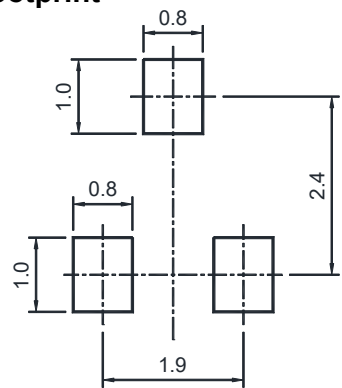
PACKAGE OUTLINE

Plastic surface mounted package (Dimensions in mm)

TO-236



Recommended Soldering Footprint



Packing information

Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
TO-236	8	4 ± 0.1	0.157 ± 0.004	178	7	3,000

Marking information

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

