



# FW276

## N-Channel Power MOSFET 450V, 0.7A, 12.1Ω, Dual SOIC8

ON Semiconductor®

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### Features

- On-resistance  $R_{DS(on)}=9.3\Omega$ (typ.)
- Input capacitance  $C_{iss}=55\text{pF}$ (typ.)
- 10V drive
- Nch+Nch dual MOSFET
- Halogen free compliance

### Specifications

**Absolute Maximum Ratings** at  $T_c = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Value	Unit
Drain to Source Voltage	$V_{DSS}$		450	V
Gate to Source Voltage	$V_{GSS}$		$\pm 30$	V
Drain Current (DC)	$I_D$		0.7	A
	$I_{DL}^{*1}$		0.35	A
Drain Current (PW≤10μs)	$I_{DP}$	Duty cycle≤1%	2.8	A
Power Dissipation (1 unit)	$P_D$		1.6	W
Total Power Dissipation (2 units)	$P_T$		2.0	W
Junction Temperature	$T_j$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$
Lead Temperature for Soldering Purposes, 3mm from Case for 10 Seconds	$T_L$		260	$^\circ\text{C}$

Note: \*1 Package limited

### Thermal Resistance Ratings

Parameter	Symbol	Value	Unit
Junction to Ambient (1 unit) <sup>*2</sup>	$R_{\theta JA}$	78.1	$^\circ\text{C}/\text{W}$
Junction to Ambient (2 units) <sup>*2</sup>	$R_{\theta JA}$	62.5	$^\circ\text{C}/\text{W}$

Note: \*2 Surface mounted on ceramic board using 2000mm<sup>2</sup>×0.8mm

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

### Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V(BR)_{DSS}$	$I_D=10\text{mA}$ , $V_{GS}=0\text{V}$	450			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=360\text{V}$ , $V_{GS}=0\text{V}$			100	$\mu\text{A}$
Gate to Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 24\text{V}$ , $V_{DS}=0\text{V}$			$\pm 10$	$\mu\text{A}$
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=10\text{V}$ , $I_D=1\text{mA}$	3.5		4.5	V
Forward Transconductance	$g_{FS}$	$V_{DS}=10\text{V}$ , $I_D=0.35\text{A}$		0.4		S
Static Drain to Source On-State Resistance	$R_{DS(on)}$	$I_D=0.35\text{A}$ , $V_{GS}=10\text{V}$		9.3	12.1	$\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=20\text{V}$ , $f=1\text{MHz}$		55		$\text{pF}$
Output Capacitance	$C_{oss}$			24		$\text{pF}$
Reverse Transfer Capacitance	$C_{rss}$			8		$\text{pF}$

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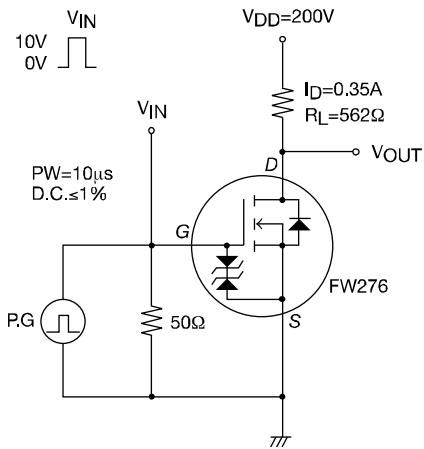
### ORDERING INFORMATION

See detailed ordering and shipping information on page 5 of this data sheet.

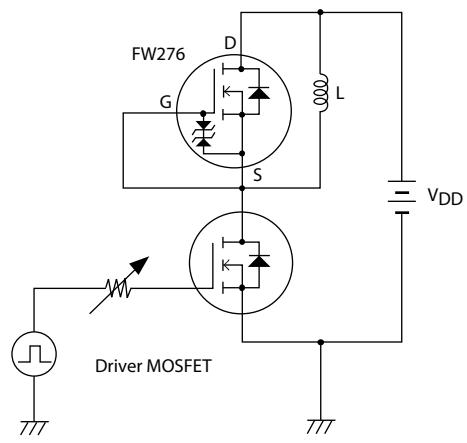
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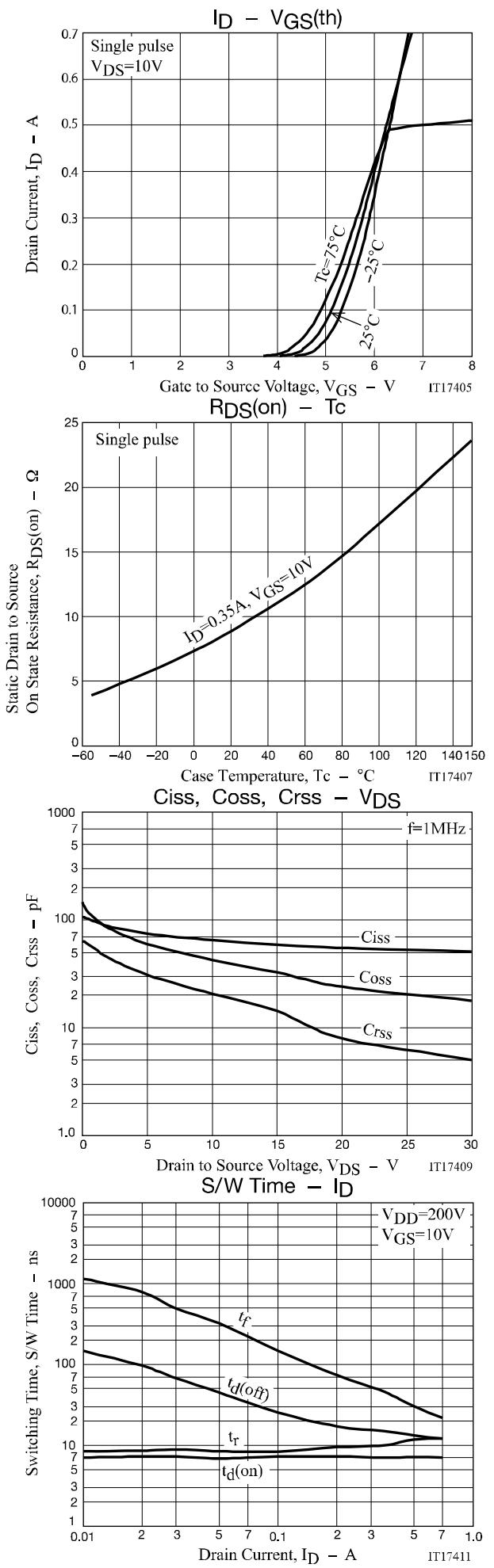
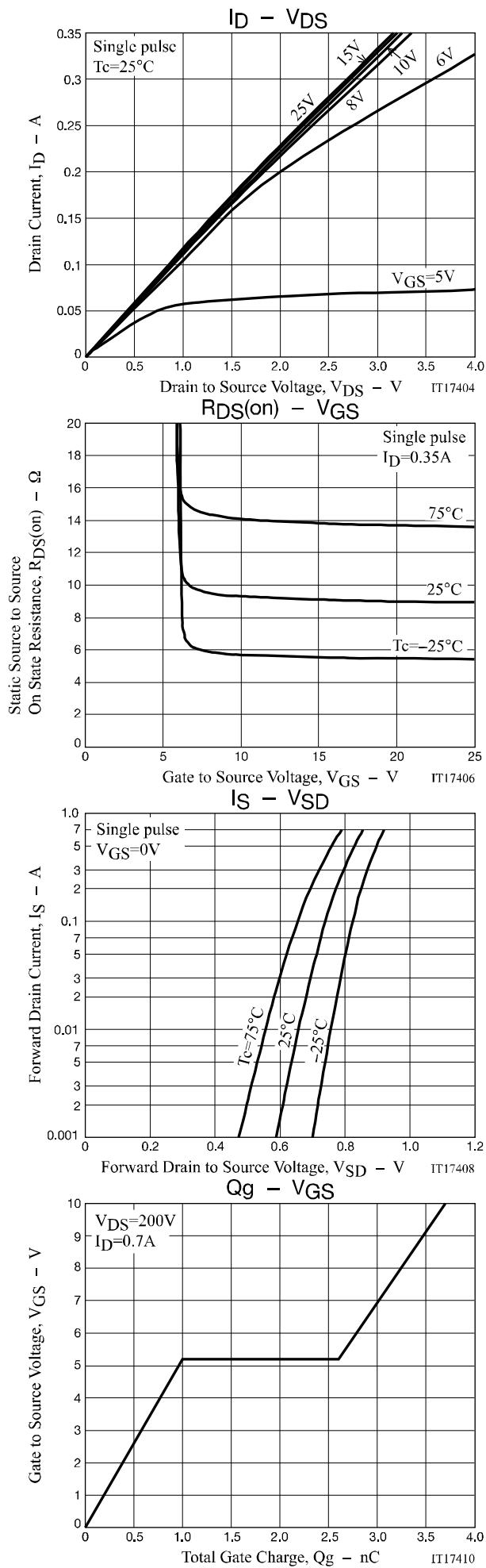
Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See Fig.1		7		ns
Rise Time	$t_r$			10		ns
Turn-OFF Delay Time	$t_{d(off)}$			15		ns
Fall Time	$t_f$			46		ns
Total Gate Charge	$Q_g$	$V_{DS}=200V, V_{GS}=10V, I_D=0.7A$		3.7		nC
Gate to Source Charge	$Q_{gs}$			1		nC
Gate to Drain "Miller" Charge	$Q_{gd}$			1.6		nC
Diode Forward Voltage	$V_{SD}$		$I_S=0.7A, V_{GS}=0V$	0.85	1.2	V
Reverse Recovery Time	$t_{rr}$	See Fig.2		76		ns
Reverse Recovery Charge	$Q_{rr}$		$I_S=0.7A, V_{GS}=0V, di/dt=100A/\mu s$	210		nC

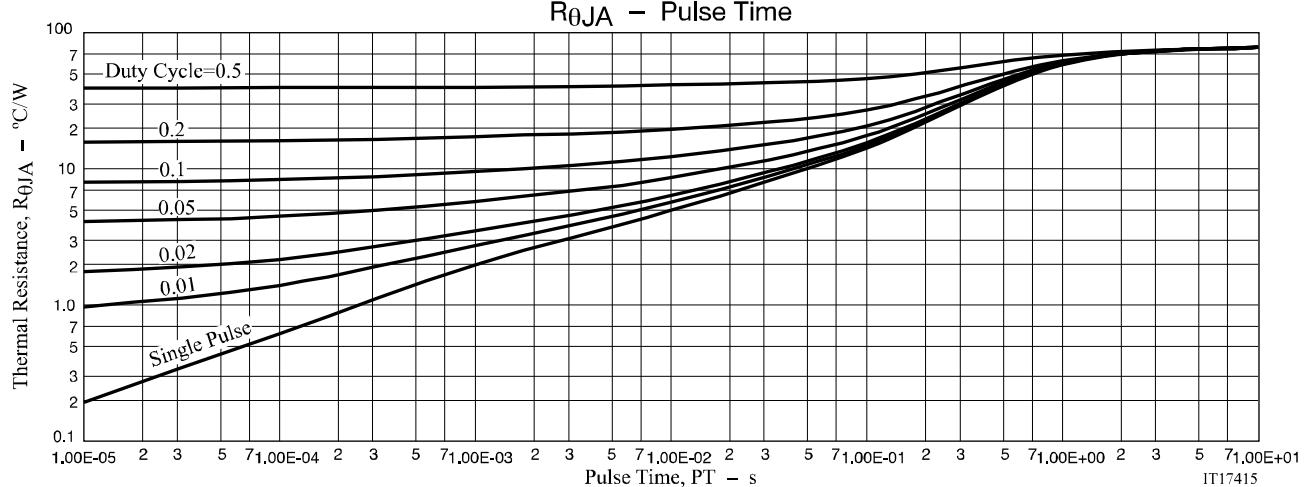
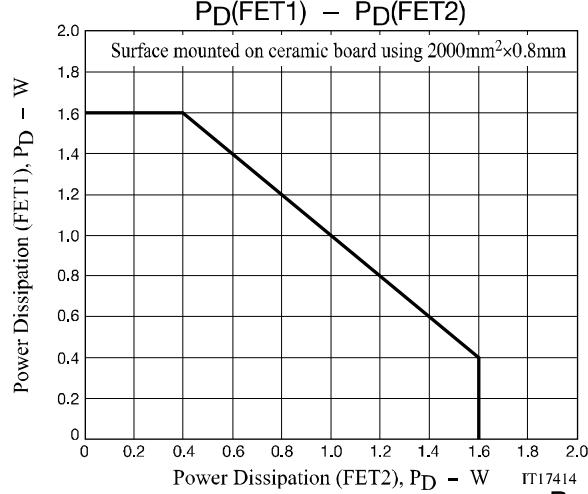
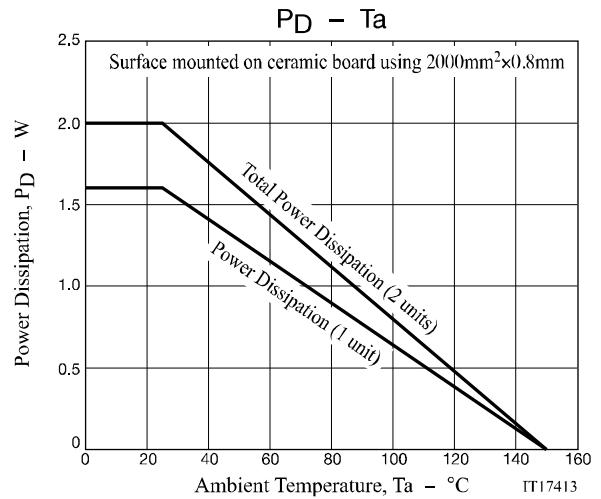
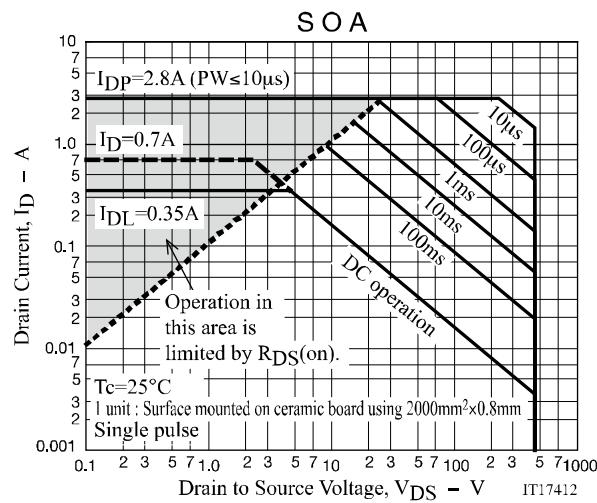
**Fig.1 Switching Time Test Circuit**



**Fig.2 Reverse Recovery Time Test Circuit**







## Package Dimensions

FW276-TL-2H

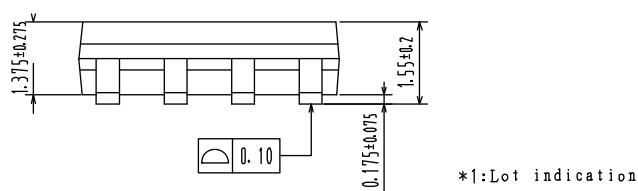
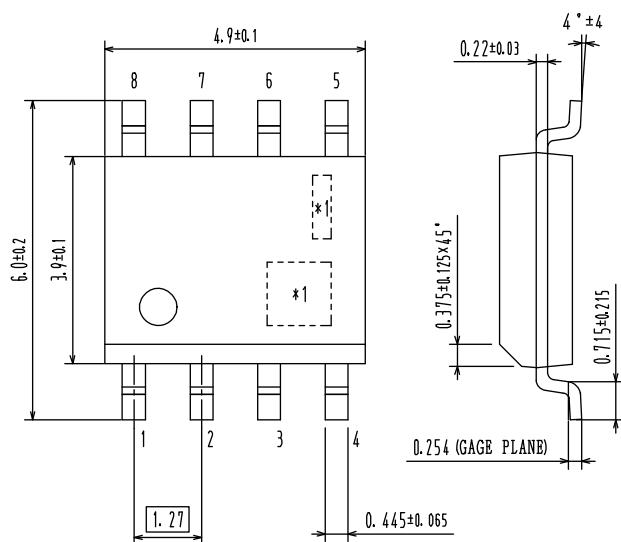
**SOIC-8**

CASE 751CR

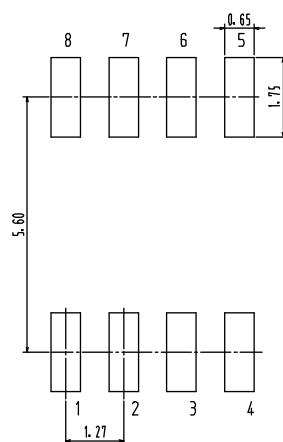
## ISSUE 0

Unit : mm

1: Source1  
2: Gate1  
3: Source2  
4: Gate2  
5: Drain2  
6: Drain2  
7: Drain1  
8: Drain1



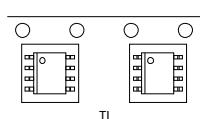
## Recommended Soldering Footprint



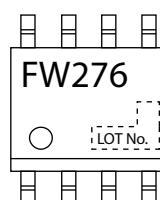
## Ordering & Package Information

Device	Package	Shipping	note
FW276-TL-2H	SOIC8 (SC-87, SOT-96)	2,500 pcs. / reel	Pb-Free and Halogen Free

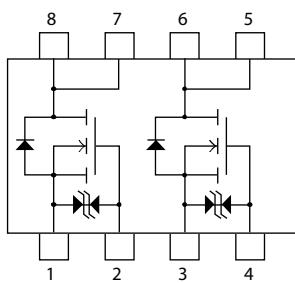
## Packing Type:TL



## Marking



## Electrical Connection



Note on usage : Since the FW276 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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