



FW4604

Power MOSFET

30V, 6A, 39mΩ, -30V, -4.5A, 65mΩ, Complementary Dual SOIC8

ON Semiconductor®

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Features

- On-state resistance Nch : $R_{DS(on)1}=30m\Omega$ (typ.)
Pch : $R_{DS(on)1}=50m\Omega$ (typ.)
- 4.5V drive
- Halogen free compliance
- Nch + Pch MOSFET
- Protection diode in

Specifications

Absolute Maximum Ratings at $T_a=25^\circ C$

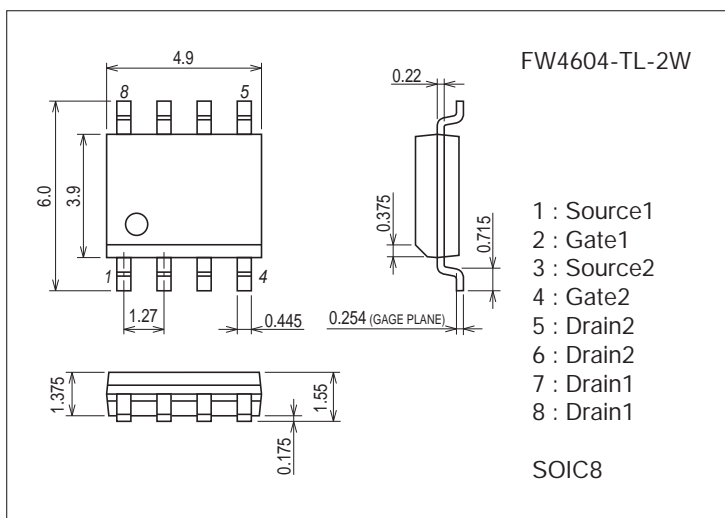
Parameter	Symbol	Conditions	N-channel	P-channel	Unit
Drain to Source Voltage	V_{DSS}		30	-30	V
Gate to Source Voltage	V_{GSS}		± 20	± 20	V
Drain Current (DC)	I_D		6	-4.5	A
Drain Current ($PW \leq 10s$)	I_{DP}	Duty cycle $\leq 1\%$	6.5	-5	A
Drain Current ($PW \leq 10\mu s$)	I_{DP}	Duty cycle $\leq 1\%$	24	-18	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (2000mm ² x0.8mm) 1unit, $PW \leq 10s$	1.8		W
Total Dissipation	P_T	When mounted on ceramic substrate (2000mm ² x0.8mm), $PW \leq 10s$	2.2		W
Channel Temperature	T_{ch}		150		$^\circ C$
Storage Temperature	T_{stg}		-55 to +150		$^\circ C$

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.

Package Dimensions

unit : mm (typ)

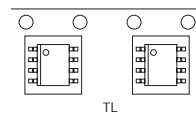
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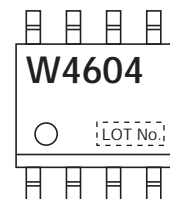
Product & Package Information

- Package : SOIC8
- JEITA, JEDEC : SC-87, SOT-96
- Minimum Packing Quantity : 2,500 pcs./reel

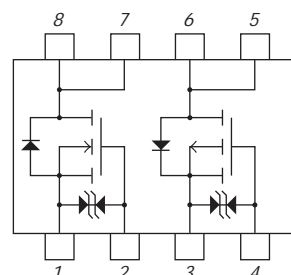
Packing Type : TL



Marking



Electrical Connection



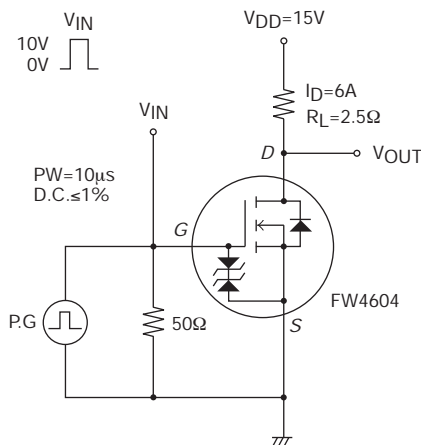
FW4604

Electrical Characteristics at Ta=25°C

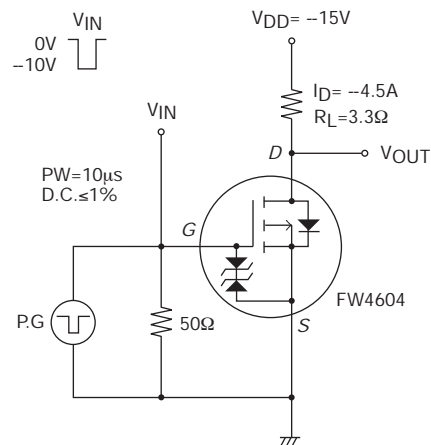
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[N-channel]						
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA, V_{GS}=0V$	30			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$			1	μA
Gate to Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16V, V_{DS}=0V$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	1.7		2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=6A$		3		S
Static Drain to Source On-State Resistance	$R_{DS(on)1}$	$I_D=6A, V_{GS}=10V$		30	39	$m\Omega$
	$R_{DS(on)2}$	$I_D=3A, V_{GS}=4.5V$		50	70	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=10V, f=1MHz$		490		pF
Output Capacitance	C_{oss}			85		pF
Reverse Transfer Capacitance	C_{rss}			45		pF
Turn-ON Delay Time	$t_d(on)$		See specified Test Circuit.		8	
Rise Time	t_r			45		ns
Turn-OFF Delay Time	$t_d(off)$			31		ns
Fall Time	t_f			28		ns
Total Gate Charge	Q_g	$V_{DS}=15V, V_{GS}=10V, I_D=6A$			9.1	
Gate to Source Charge	Q_{gs}			1.7		nC
Gate to Drain "Miller" Charge	Q_{gd}			1.7		nC
Diode Forward Voltage	V_{SD}	$I_S=6A, V_{GS}=0V$		0.84	1.2	V
[P-channel]						
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-1mA, V_{GS}=0V$	-30			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-30V, V_{GS}=0V$			-1	μA
Gate to Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16V, V_{DS}=0V$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-10V, I_D=-1mA$	-1.7		-2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10V, I_D=-4.5A$		5.2		S
Static Drain to Source On-State Resistance	$R_{DS(on)1}$	$I_D=-4.5A, V_{GS}=-10V$		50	65	$m\Omega$
	$R_{DS(on)2}$	$I_D=-2.5A, V_{GS}=-4.5V$		85	119	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=-10V, f=1MHz$		430		pF
Output Capacitance	C_{oss}			105		pF
Reverse Transfer Capacitance	C_{rss}			75		pF
Turn-ON Delay Time	$t_d(on)$		See specified Test Circuit.		7.5	
Rise Time	t_r			42		ns
Turn-OFF Delay Time	$t_d(off)$			43		ns
Fall Time	t_f			40		ns
Total Gate Charge	Q_g	$V_{DS}=-15V, V_{GS}=-10V, I_D=-4.5A$			10	
Gate to Source Charge	Q_{gs}			2.0		nC
Gate to Drain "Miller" Charge	Q_{gd}			2.5		nC
Diode Forward Voltage	V_{SD}	$I_S=-4.5A, V_{GS}=0V$		-0.86	-1.5	V

Switching Time Test Circuit

[N-channel]

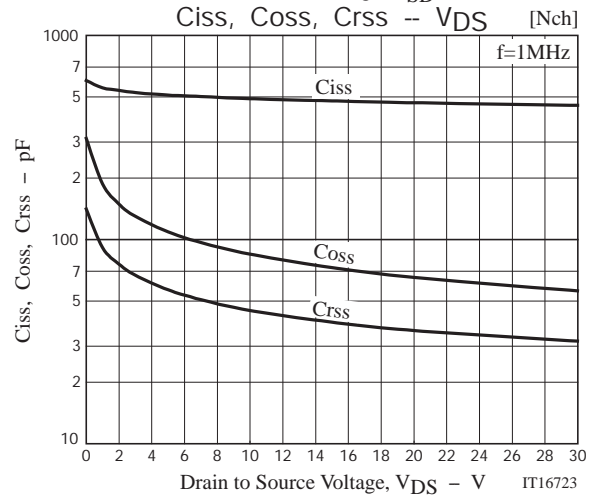
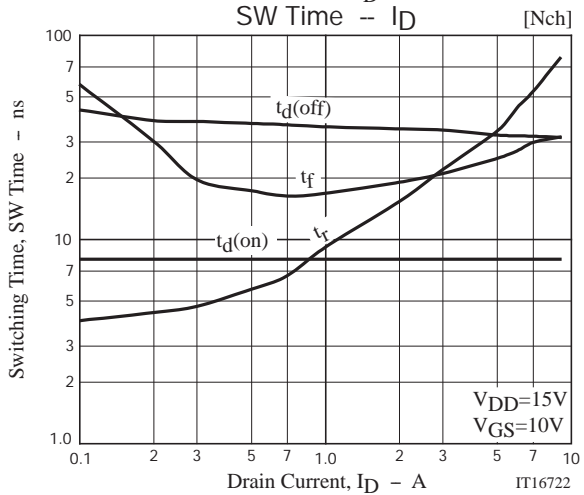
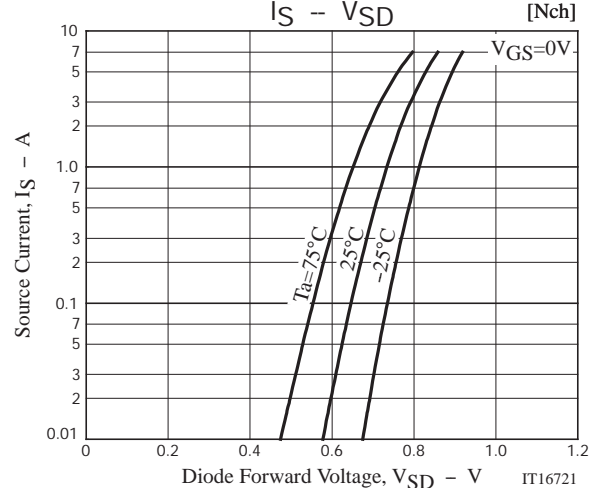
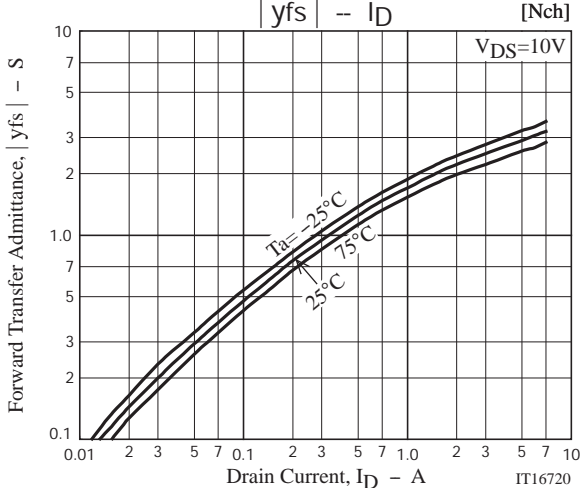
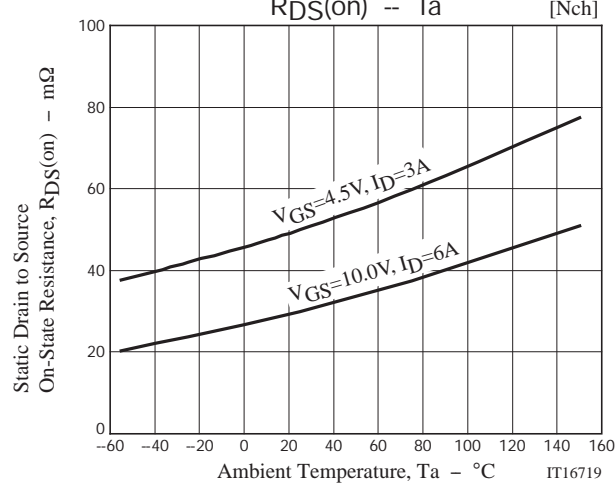
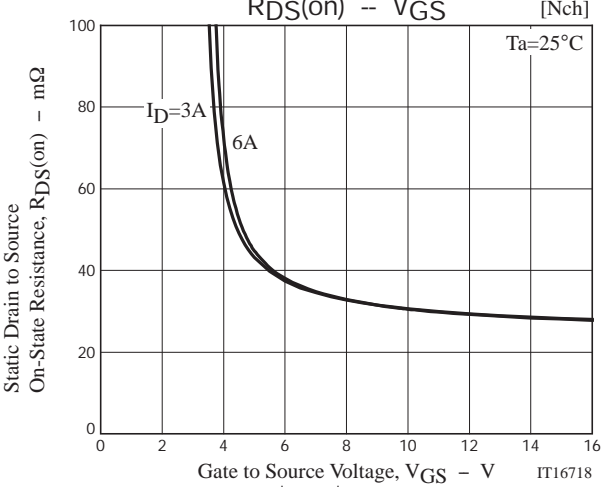
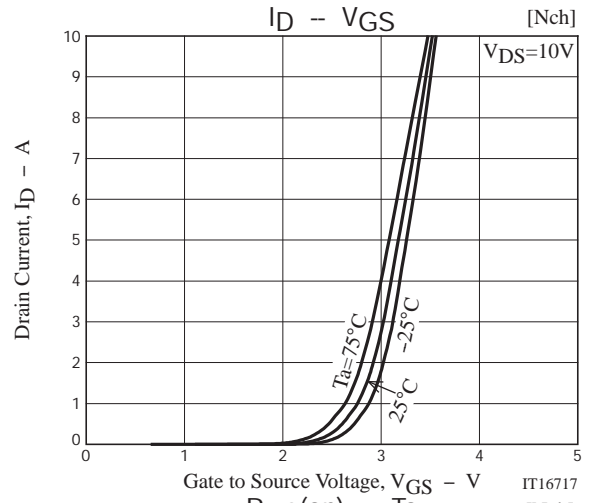
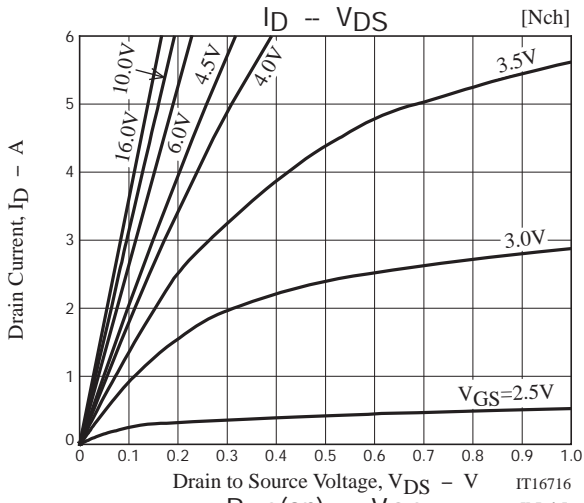


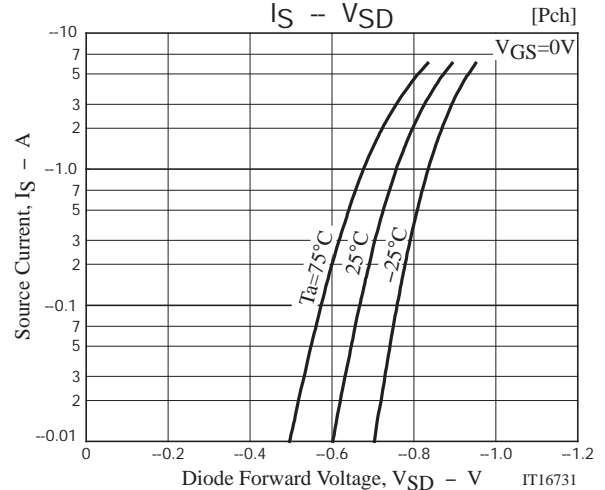
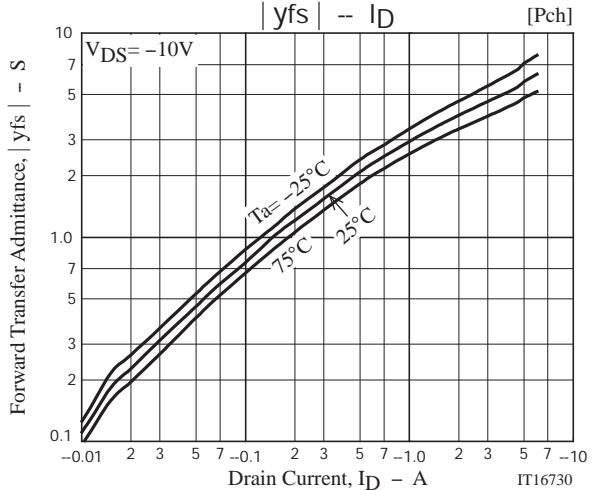
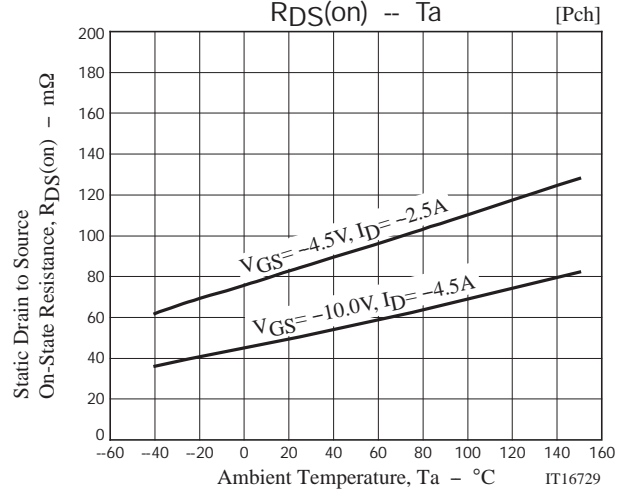
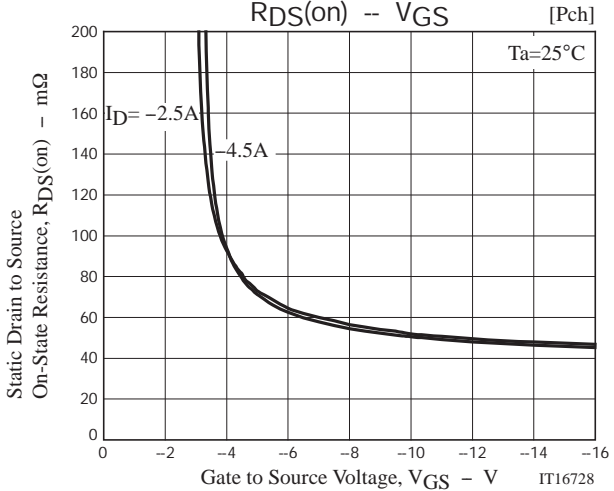
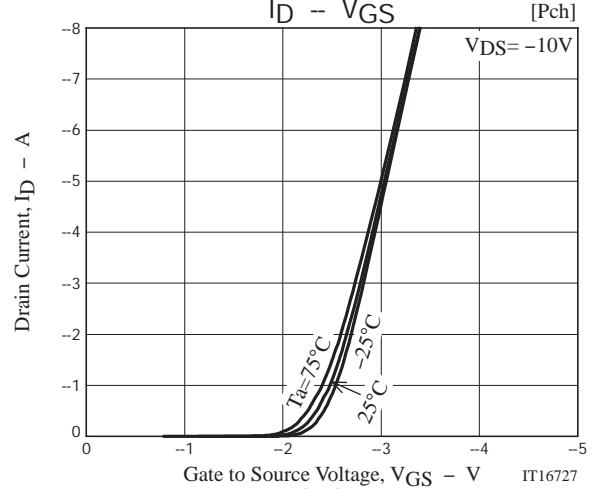
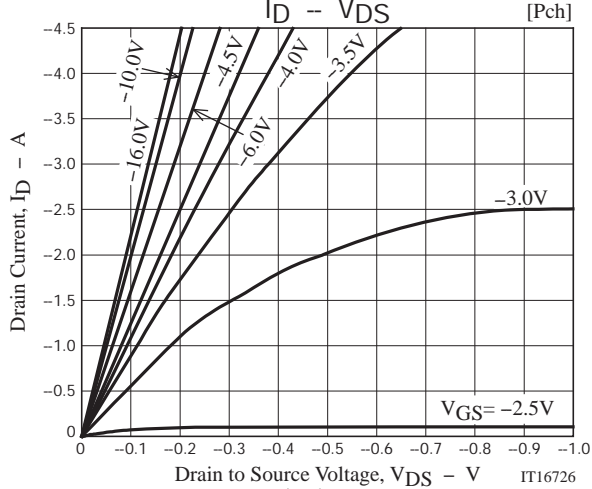
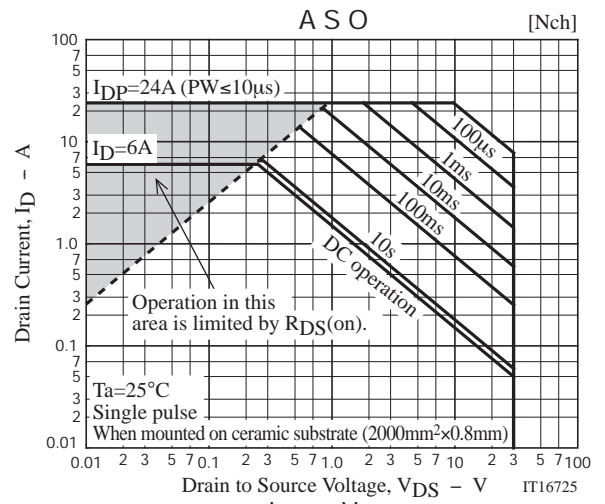
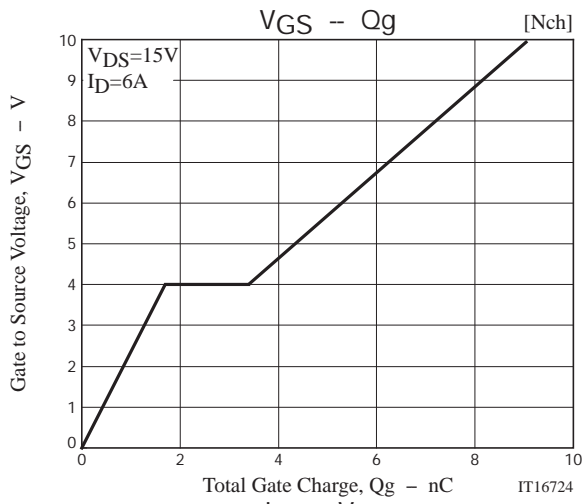
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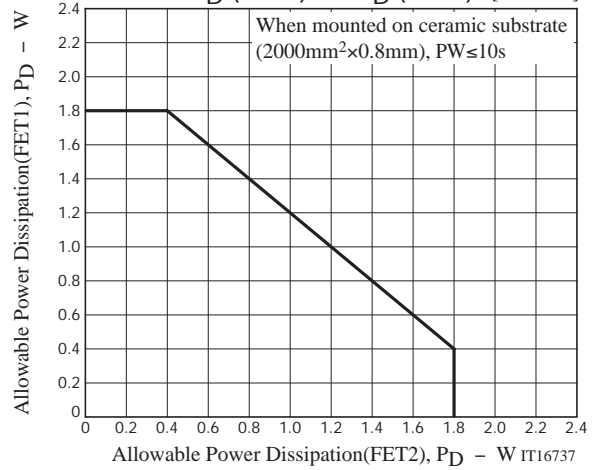
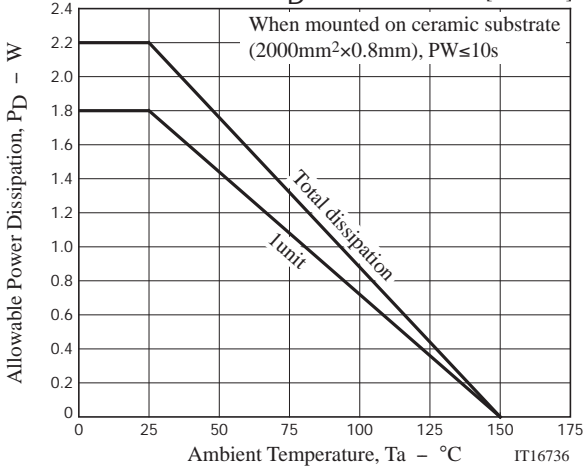
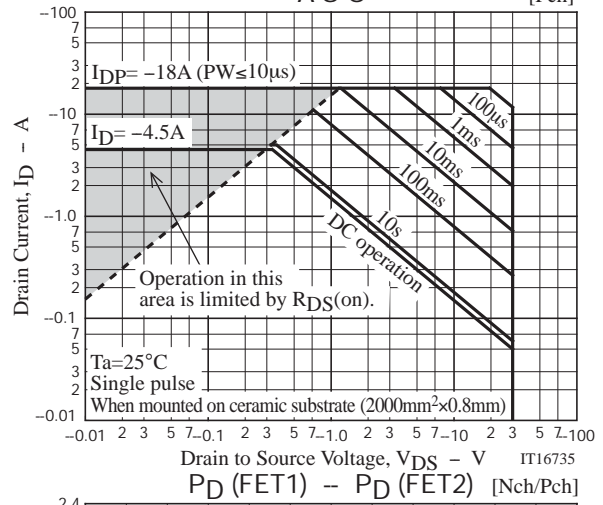
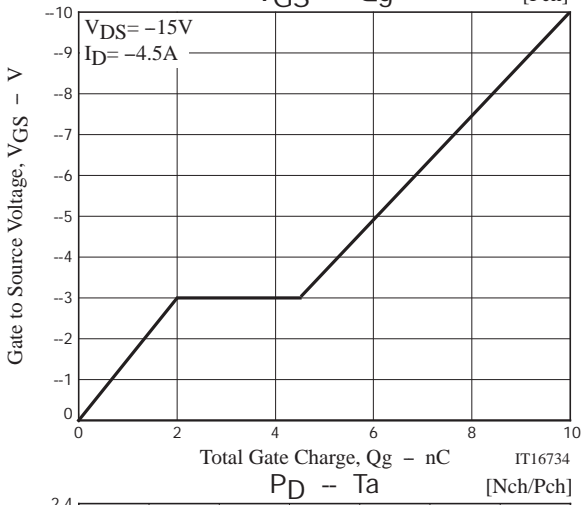
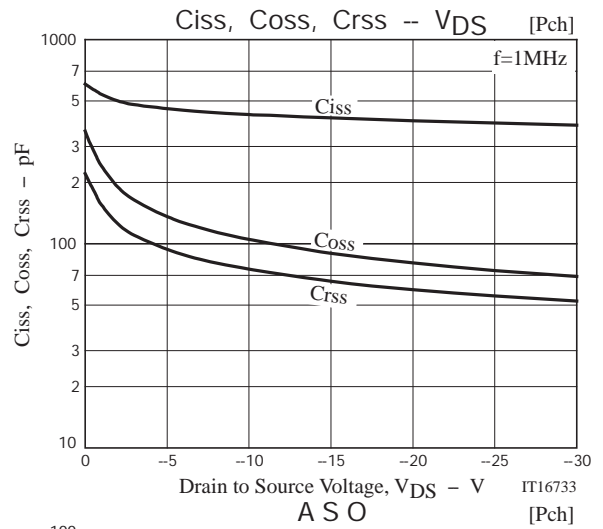
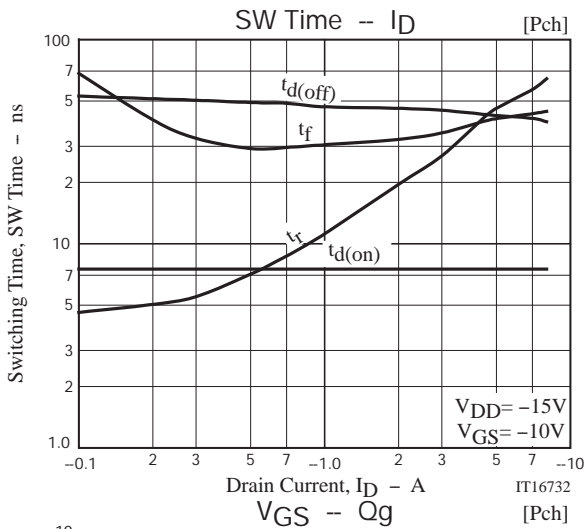


Ordering Information

Device	Package	Shipping	memo
FW4604-TL-2W	SOIC8	2,500pcs./reel	Pb-Free and Halogen Free

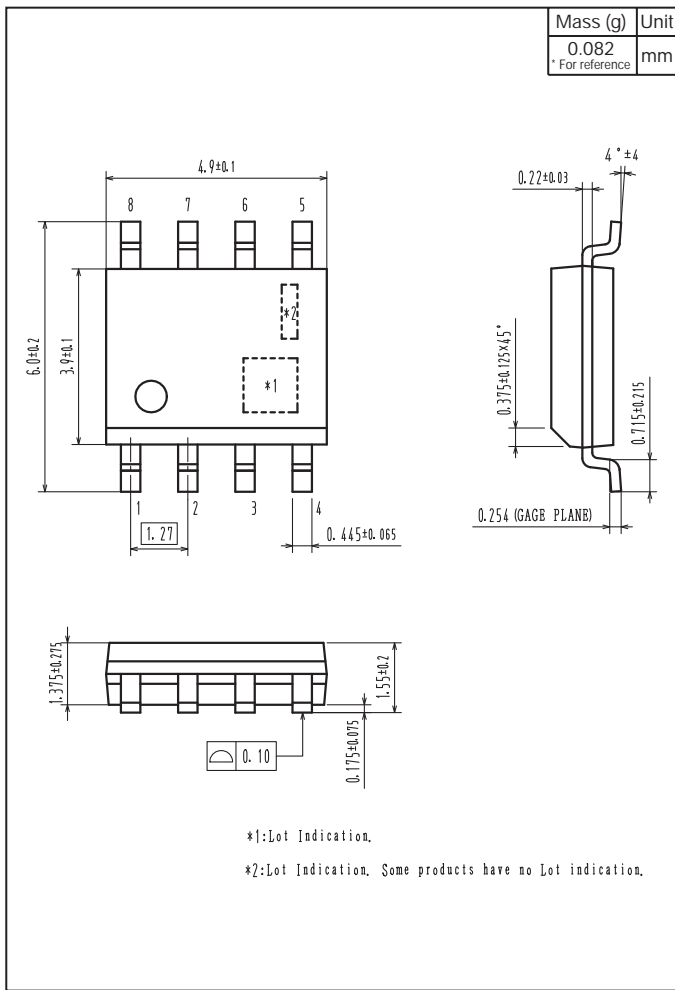




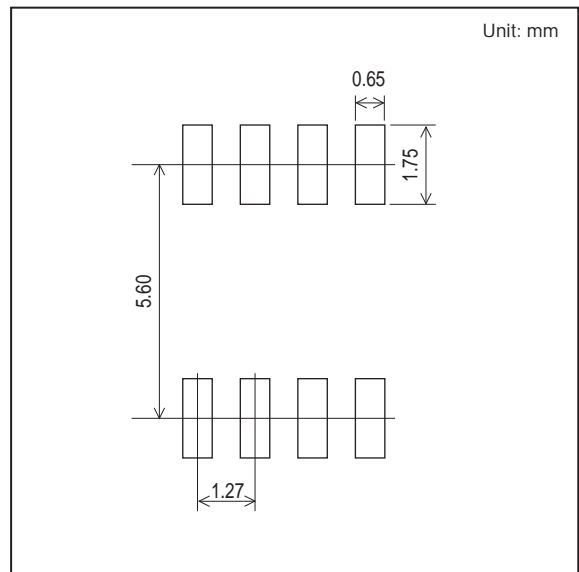


Outline Drawing

FW4604-TL-2W



Land Pattern Example



Note on usage : Since the FW4604 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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