



FW4604

Power MOSFET

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

ON Semiconductor®

<http://onsemi.com>

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 $T_a=25^\circ\text{C}$

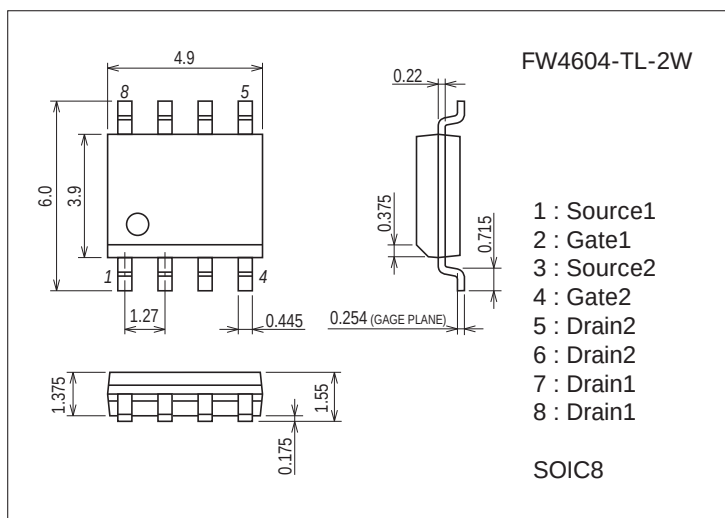
Parameter	Symbol	Conditions	N-channel	P-channel	Unit
Drain to Source Voltage	V_{DSS}		30	-30	V
Gate to Source Voltage	V_{GSS}		± 20	± 20	V
Drain Current (DC)	I_D		6	-4.5	A
Drain Current ($PW \leq 10s$)	I_{DP}	Duty cycle $\leq 1\%$	6.5	-5	A
Drain Current ($PW \leq 10\mu s$)	I_{DP}	Duty cycle $\leq 1\%$	24	-18	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (2000mm ² ×0.8mm) 1unit, $PW \leq 10s$	1.8		W
Total Dissipation	P_T	When mounted on ceramic substrate (2000mm ² ×0.8mm), $PW \leq 10s$	2.2		W
Channel Temperature	T_{ch}		150		$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150		$^\circ\text{C}$

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)

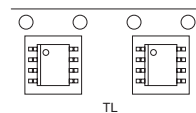
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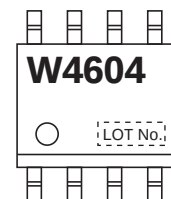
Product & Package Information

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

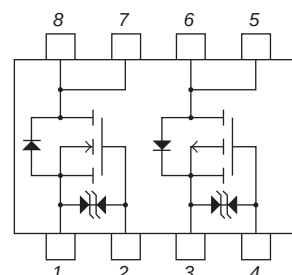
Packing Type : TL



Marking



Electrical Connection

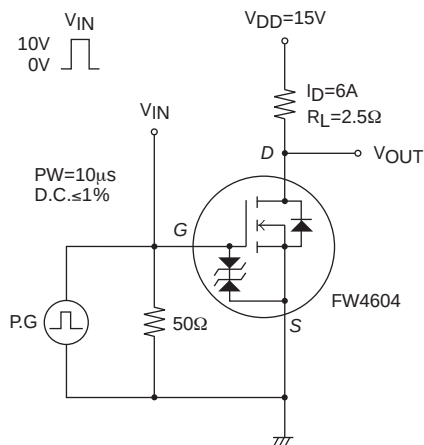


Electrical Characteristics at Ta=25°C

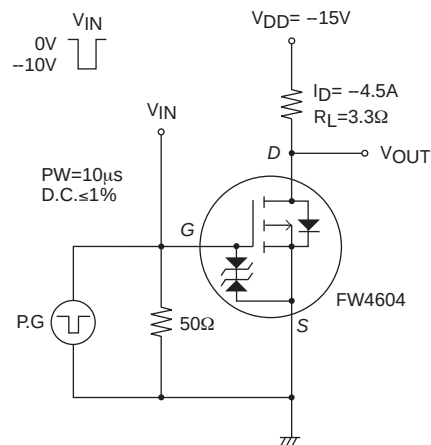
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[N-channel]						
Drain to Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0V	30			V
Zero-Gate Voltage Drain Current	IDSS	VDS=30V, VGS=0V			1	μA
Gate to Source Leakage Current	IGSS	VGS=±16V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=10V, ID=1mA	1.7		2.6	V
Forward Transfer Admittance	yfs	VDS=10V, ID=6A		3		S
Static Drain to Source On-State Resistance	RDS(on)1	ID=6A, VGS=10V		30	39	mΩ
	RDS(on)2	ID=3A, VGS=4.5V		50	70	mΩ
Input Capacitance	Ciss	VDS=10V, f=1MHz		490		pF
Output Capacitance	Coss			85		pF
Reverse Transfer Capacitance	Crss			45		pF
Turn-ON Delay Time	td(on)	See specified Test Circuit.		8		ns
Rise Time	tr			45		ns
Turn-OFF Delay Time	td(off)			31		ns
Fall Time	tf			28		ns
Total Gate Charge	Qg	VDS=15V, VGS=10V, ID=6A		9.1		nC
Gate to Source Charge	Qgs			1.7		nC
Gate to Drain “Miller” Charge	Qgd			1.7		nC
Diode Forward Voltage	VSD	IS=6A, VGS=0V		0.84	1.2	V
[P-channel]						
Drain to Source Breakdown Voltage	V(BR)DSS	ID=-1mA, VGS=0V	-30			V
Zero-Gate Voltage Drain Current	IDSS	VDS=-30V, VGS=0V			-1	μA
Gate to Source Leakage Current	IGSS	VGS=±16V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=-10V, ID=-1mA	-1.7		-2.6	V
Forward Transfer Admittance	yfs	VDS=-10V, ID=-4.5A		5.2		S
Static Drain to Source On-State Resistance	RDS(on)1	ID=-4.5A, VGS=-10V		50	65	mΩ
	RDS(on)2	ID=-2.5A, VGS=-4.5V		85	119	mΩ
Input Capacitance	Ciss	VDS=-10V, f=1MHz		430		pF
Output Capacitance	Coss			105		pF
Reverse Transfer Capacitance	Crss			75		pF
Turn-ON Delay Time	td(on)	See specified Test Circuit.		7.5		ns
Rise Time	tr			42		ns
Turn-OFF Delay Time	td(off)			43		ns
Fall Time	tf			40		ns
Total Gate Charge	Qg	VDS=-15V, VGS=-10V, ID=-4.5A		10		nC
Gate to Source Charge	Qgs			2.0		nC
Gate to Drain “Miller” Charge	Qgd			2.5		nC
Diode Forward Voltage	VSD	IS=-4.5A, VGS=0V		-0.86	-1.5	V

Switching Time Test Circuit

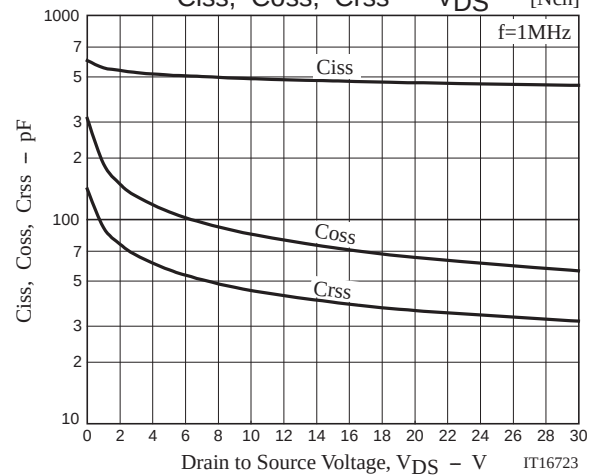
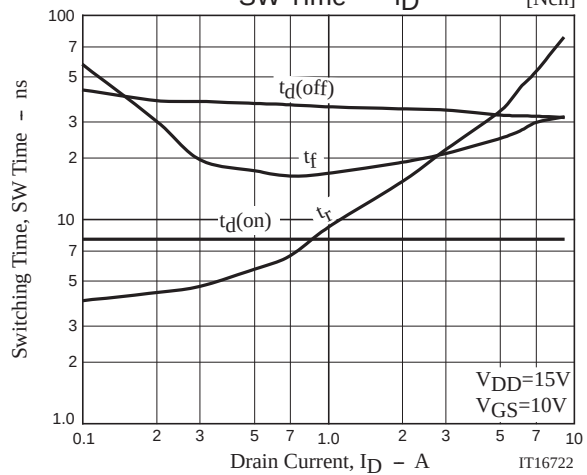
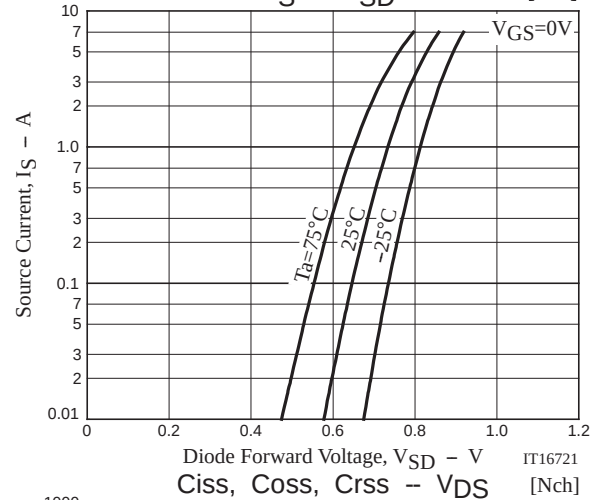
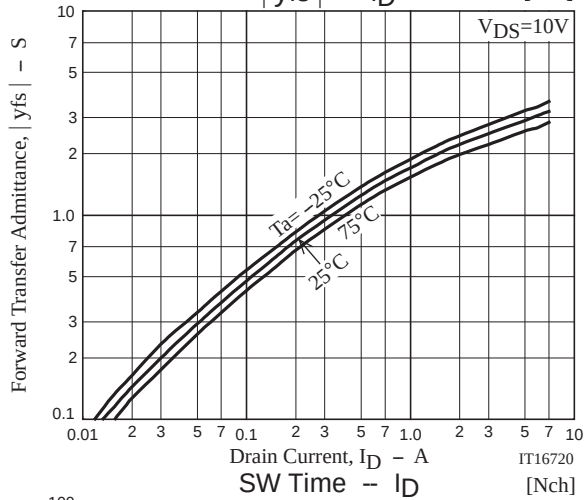
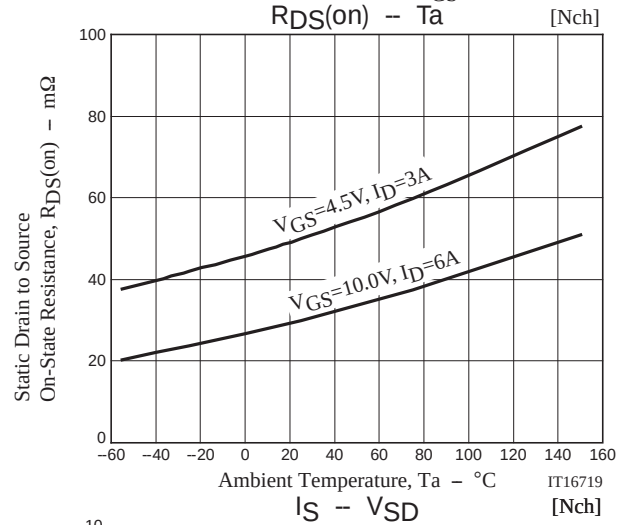
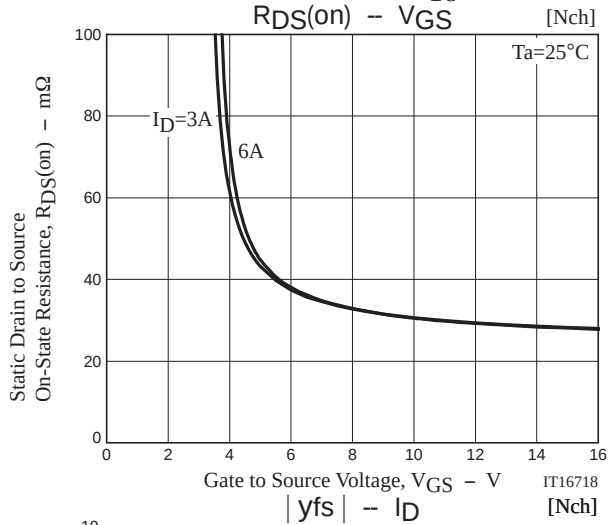
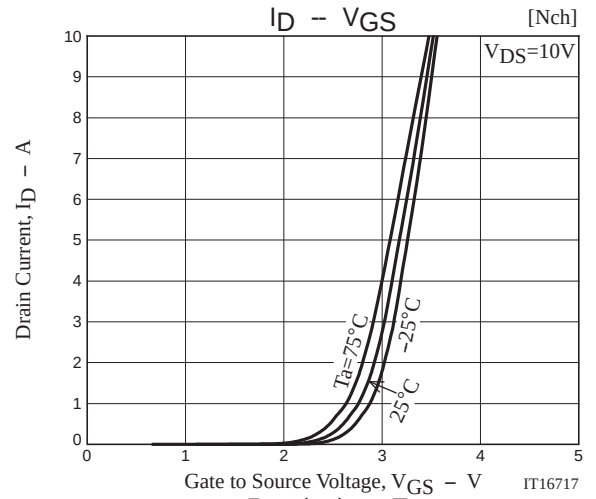
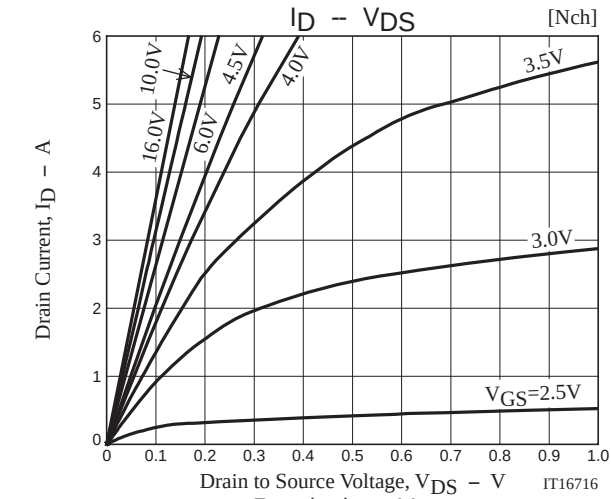
[N-channel]

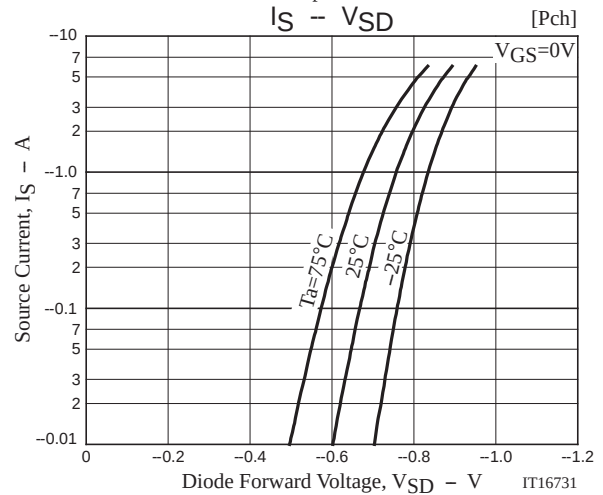
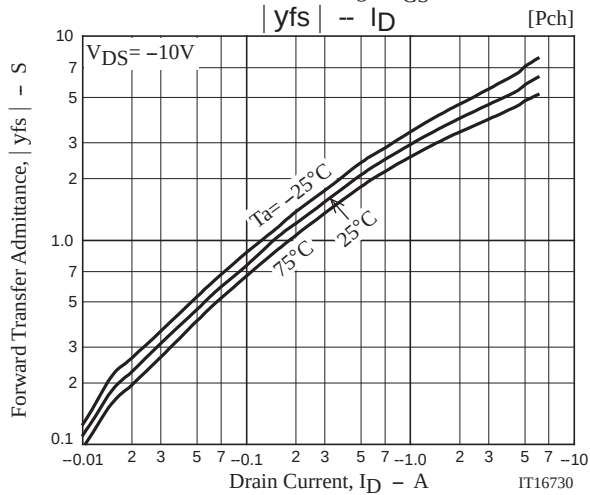
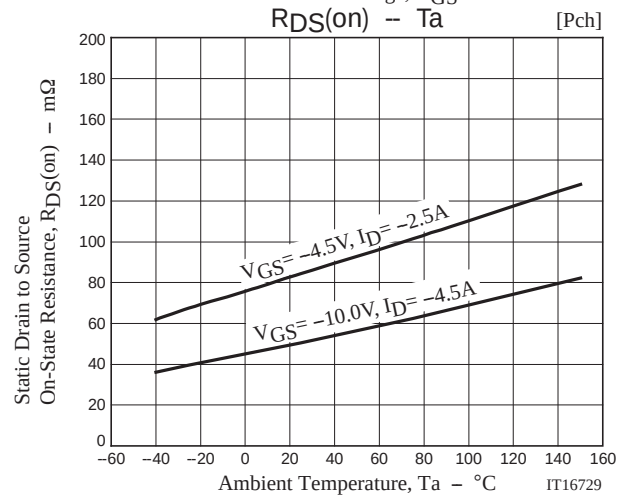
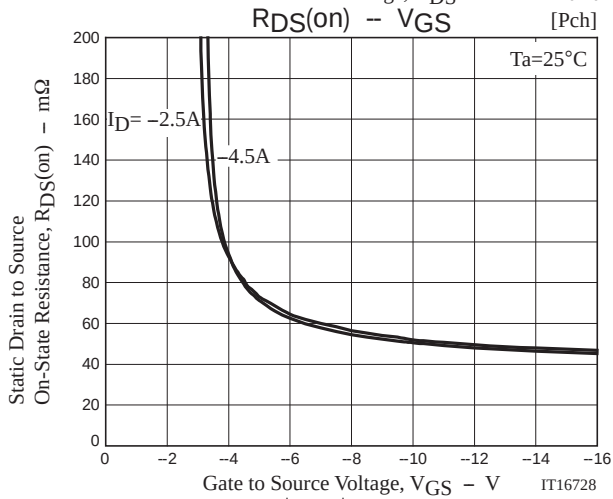
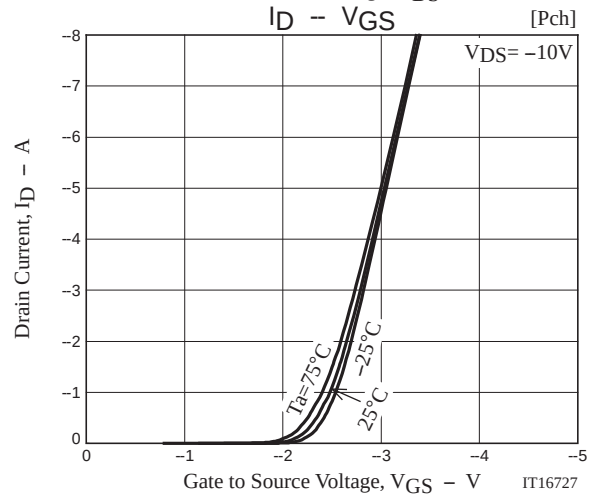
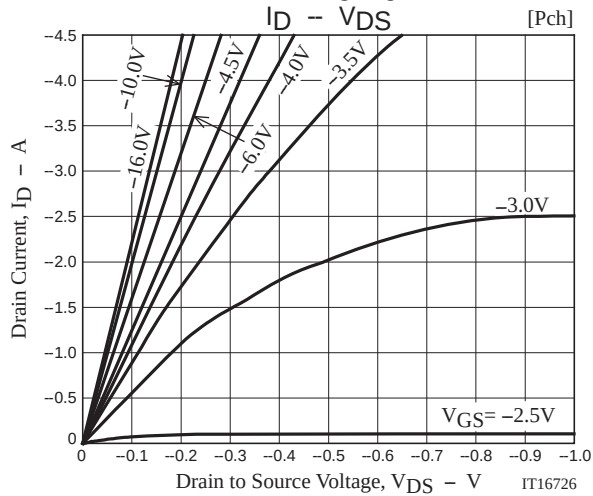
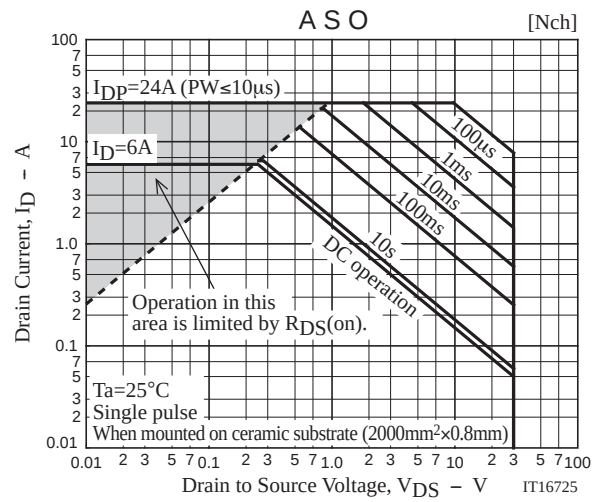
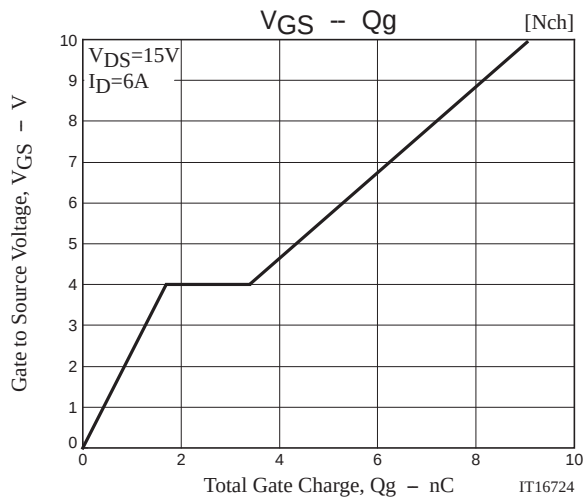


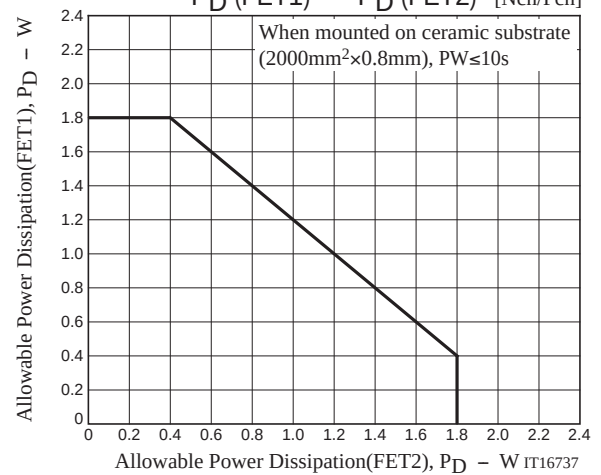
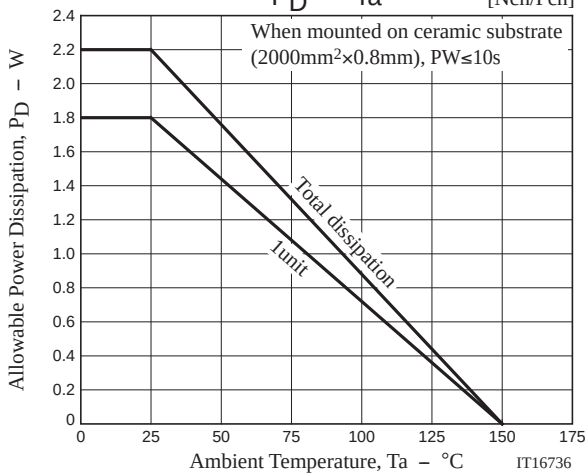
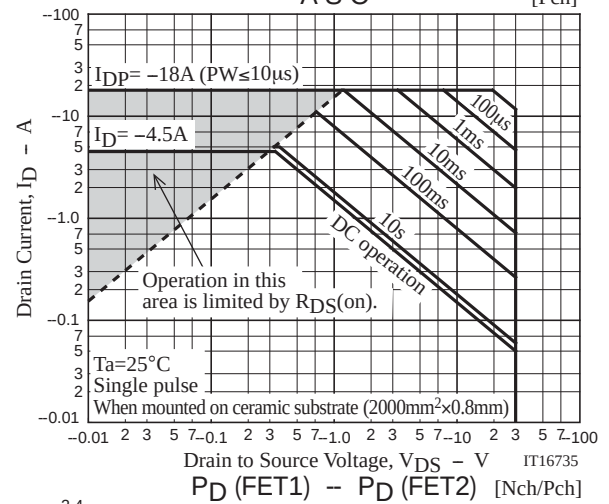
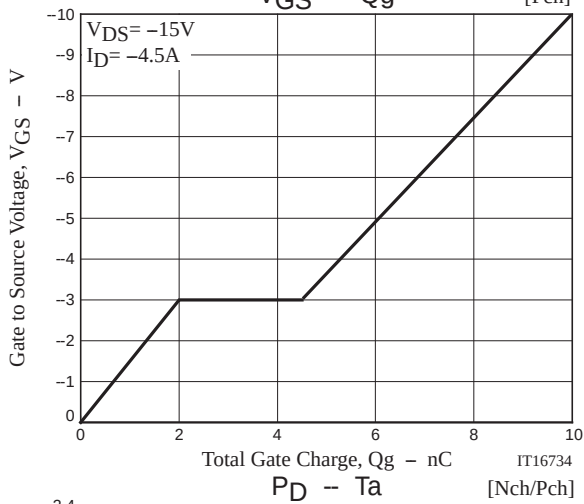
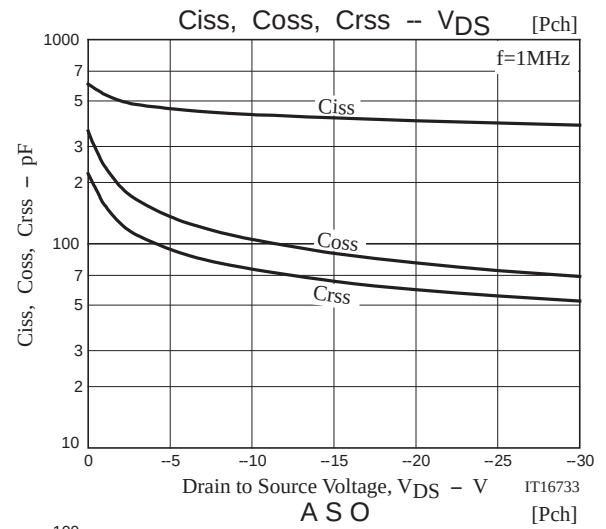
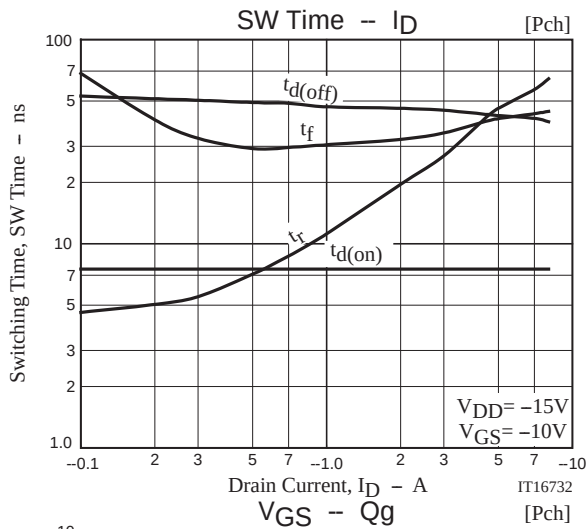
[P-channel]

**Ordering Information**

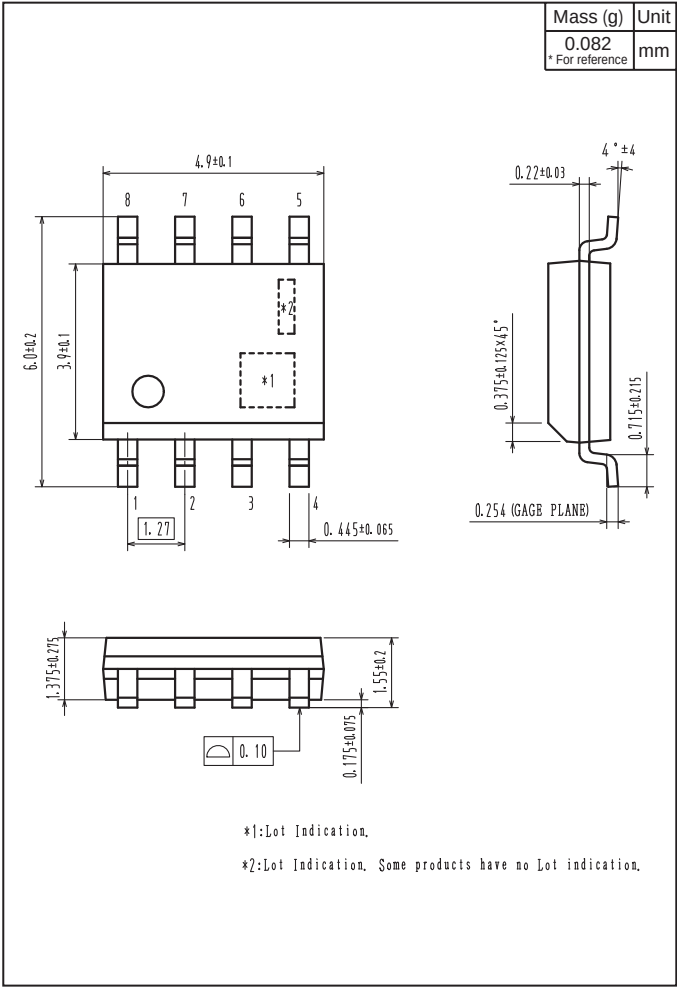
Device	Package	Shipping	memo
FW4604-TL-2W	SOIC8	2,500pcs./reel	Pb-Free and Halogen Free



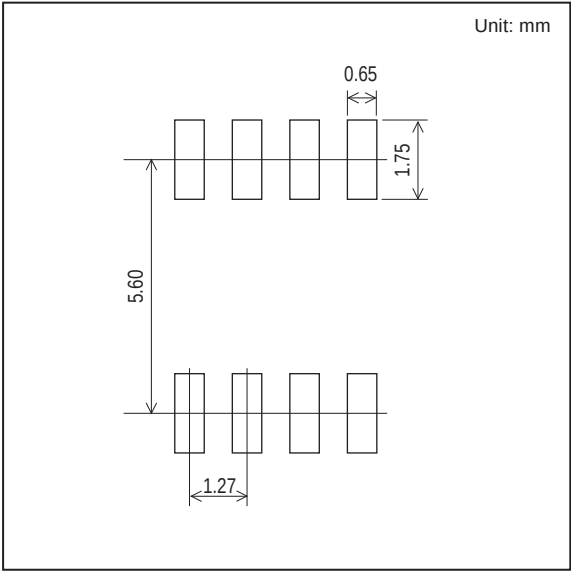




Outline Drawing
FW4604-TL-2W



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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