



CPH6635

Power MOSFET

30V, 0.4A, 3.7Ω, -20V, -1.5A, 280mΩ, Complementary Dual CPH6

ON Semiconductor®

<http://onsemi.com>

Features

- Excellent ON-resistance characteristic (P-Channel : $R_{DS(on)1}=215m\Omega$ (typ.))
- Optimal for load switch use (N-Channel for drive is embedded)
- N-Channel : 1.5V drive, P-Channel : 1.8V drive
- Halogen Free compliance

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	-20	V
Gate to Source Voltage	V_{GSS}		± 10	± 10	V
Drain Current (DC)	I_D		0.4	-1.5	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	1.6	-6.0	A
Allowable Power Dissipation	P_D	When mounted on ceramic substrate (900mm ² ×0.8mm) 1unit	0.8		W
Channel Temperature	T_{ch}		150		°C
Storage Temperature	T_{stg}		-55 to +150		°C

This product is designed to "ESD immunity < 200V**", so please take care when handling.

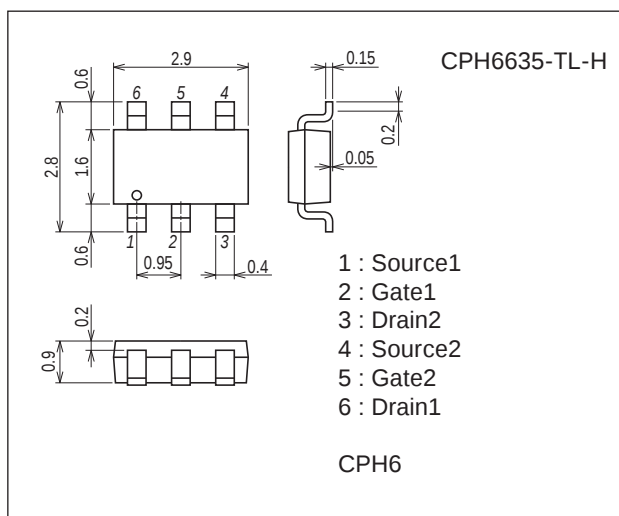
* Machine Model

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)

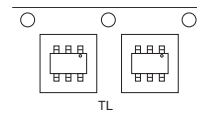
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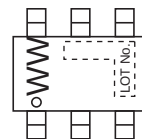
Ordering & Package Information

Device	Package	Shipping	memo
CPH6635-TL-H	CPH6 SC-74, SOT-26, SOT-45	3,000 pcs./reel	Pb Free and Halogen Free

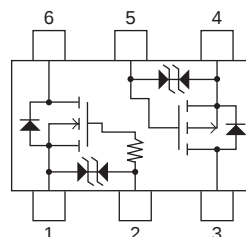
Packing Type: TL



Marking



Electrical Connection



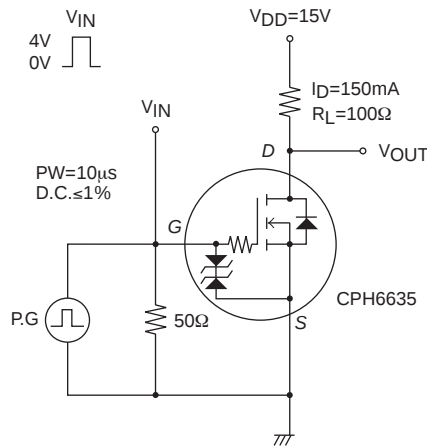
CPH6635

Electrical Characteristics at Ta=25°C

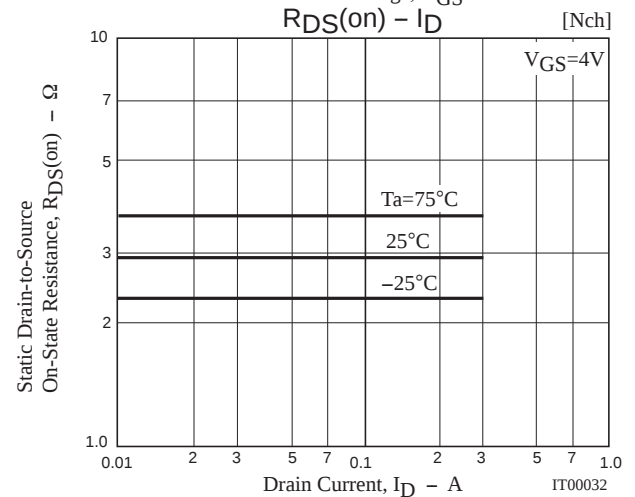
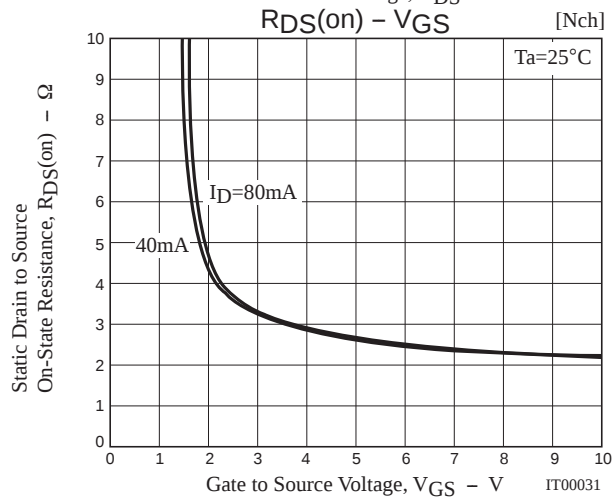
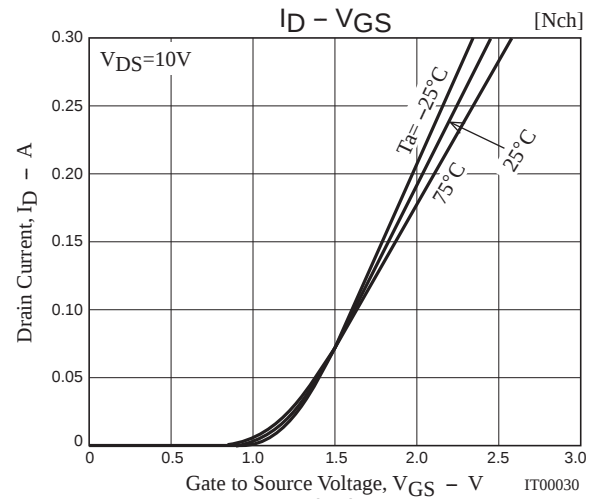
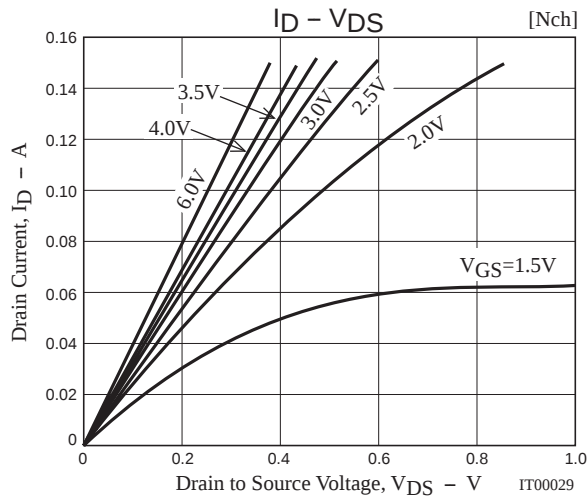
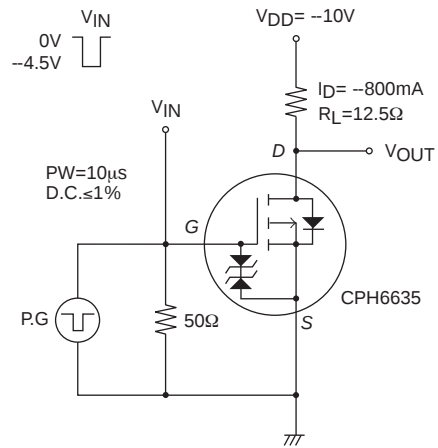
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[N-channel]						
Drain to Source Breakdown Voltage	V(BR)DSS	I _D =1mA, V _{GS} =0V	30			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			1	μA
Gate to Source Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0V			±10	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =10V, I _D =100μA	0.4		1.3	V
Forward Transfer Admittance	y _{fs}	V _{DS} =10V, I _D =80mA		0.22		S
Static Drain to Source On-State Resistance	R _{DS(on)1}	I _D =80mA, V _{GS} =4V		2.9	3.7	Ω
	R _{DS(on)2}	I _D =40mA, V _{GS} =2.5V		3.7	5.2	Ω
	R _{DS(on)3}	I _D =10mA, V _{GS} =1.5V		6.4	12.8	Ω
Input Capacitance	C _{iss}	V _{DS} =10V, f=1MHz		7		pF
Output Capacitance	C _{oss}			5.9		pF
Reverse Transfer Capacitance	C _{rss}			2.3		pF
Turn-ON Delay Time	t _{d(on)}	See specified Test Circuit.		19		ns
Rise Time	t _r			65		ns
Turn-OFF Delay Time	t _{d(off)}			155		ns
Fall Time	t _f			120		ns
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =10V, I _D =150mA		1.58		nC
Gate to Source Charge	Q _{gs}			0.26		nC
Gate to Drain “Miller” Charge	Q _{gd}			0.31		nC
Diode Forward Voltage	V _{SD}	I _S =150mA, V _{GS} =0V		0.87	1.2	V
[P-channel]						
Drain to Source Breakdown Voltage	V(BR)DSS	I _D =-1mA, V _{GS} =0V	-20			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V			-1	μA
Gate to Source Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0V			±10	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =-10V, I _D =-1mA	-0.4		-1.4	V
Forward Transfer Admittance	y _{fs}	V _{DS} =-10V, I _D =-800mA		1.9		S
Static Drain to Source On-State Resistance	R _{DS(on)1}	I _D =-800mA, V _{GS} =-4.5V		215	280	mΩ
	R _{DS(on)2}	I _D =-400mA, V _{GS} =-2.5V		310	434	mΩ
	R _{DS(on)3}	I _D =-200mA, V _{GS} =-1.8V		450	675	mΩ
Input Capacitance	C _{iss}	V _{DS} =-10V, f=1MHz		120		pF
Output Capacitance	C _{oss}			26		pF
Reverse Transfer Capacitance	C _{rss}			20		pF
Turn-ON Delay Time	t _{d(on)}	See specified Test Circuit.		5.3		ns
Rise Time	t _r			9.7		ns
Turn-OFF Delay Time	t _{d(off)}			16		ns
Fall Time	t _f			14		ns
Total Gate Charge	Q _g	V _{DS} =-10V, V _{GS} =-4V, I _D =-1.5A		1.7		nC
Gate to Source Charge	Q _{gs}			0.28		nC
Gate to Drain “Miller” Charge	Q _{gd}			0.47		nC
Diode Forward Voltage	V _{SD}	I _S =-1.5A, V _{GS} =0V		-0.9	-1.5	V

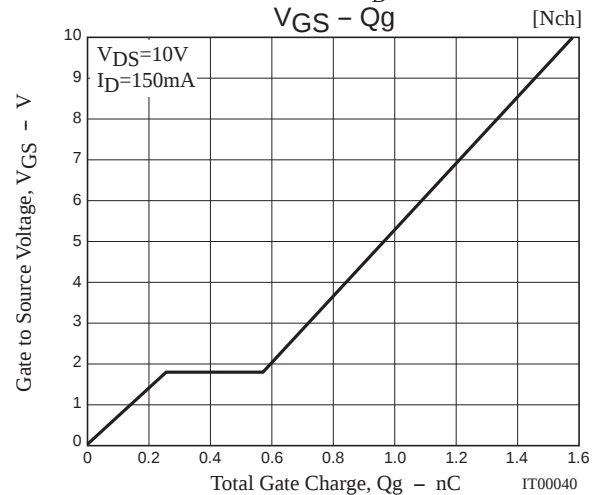
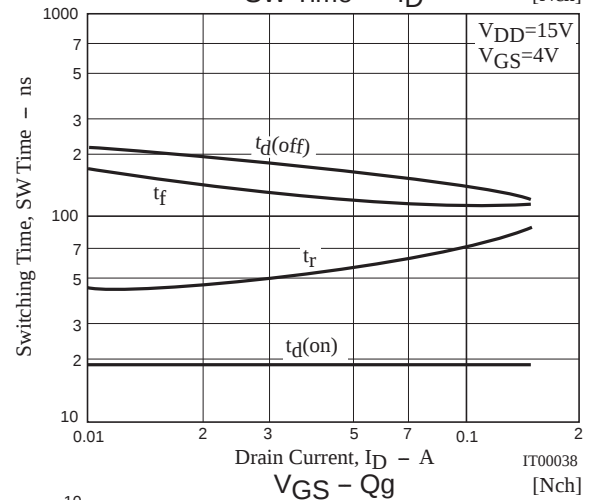
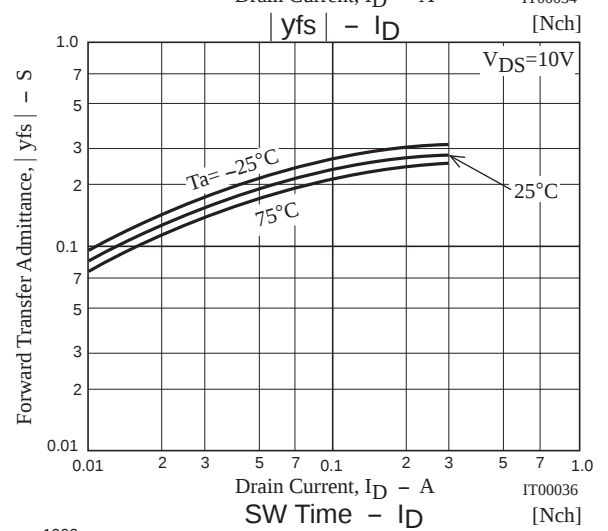
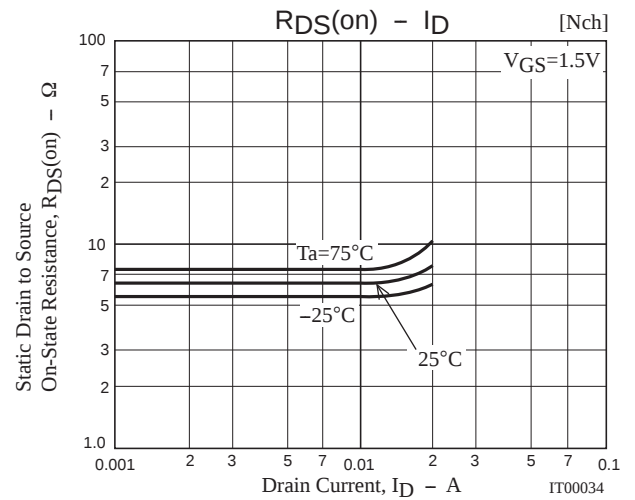
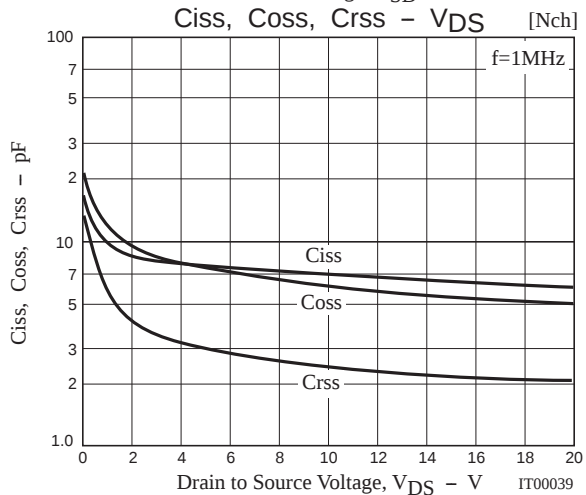
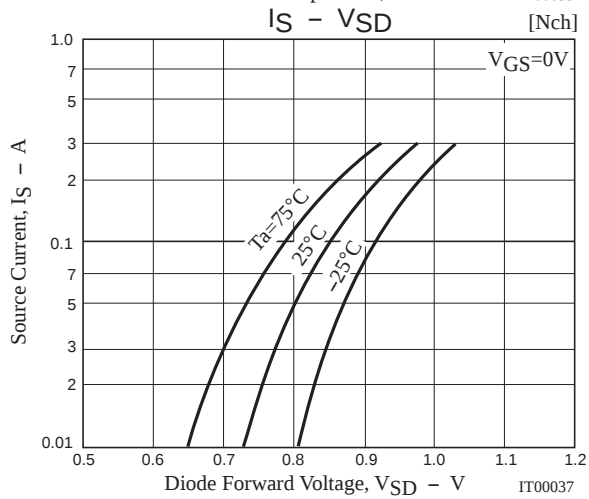
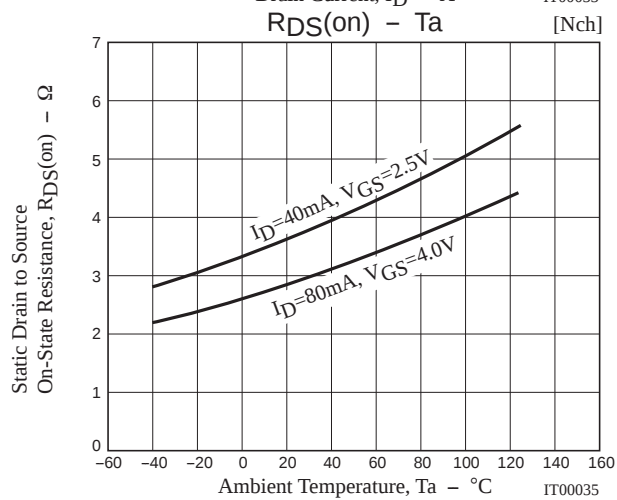
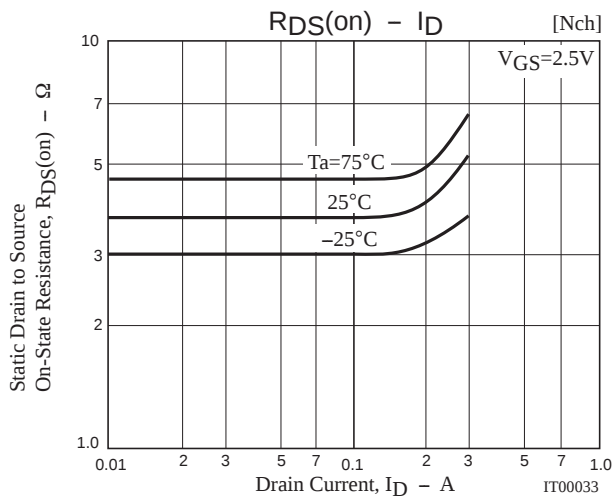
Switching Time Test Circuit

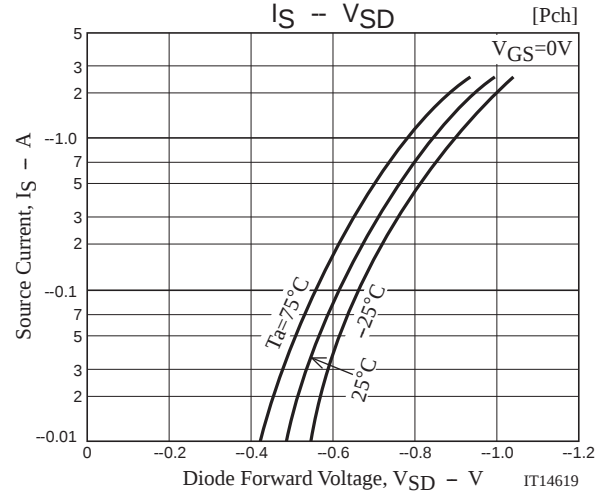
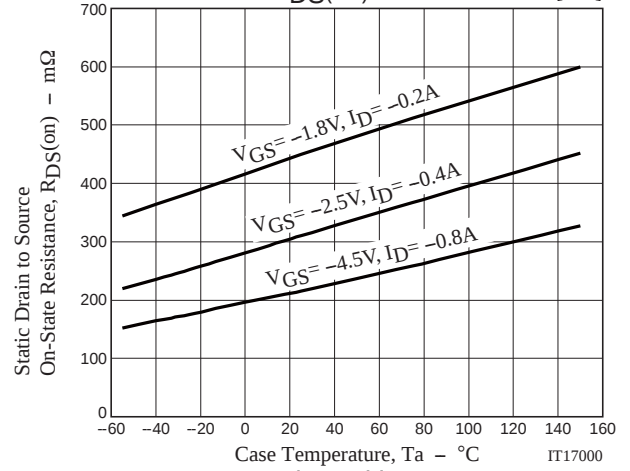
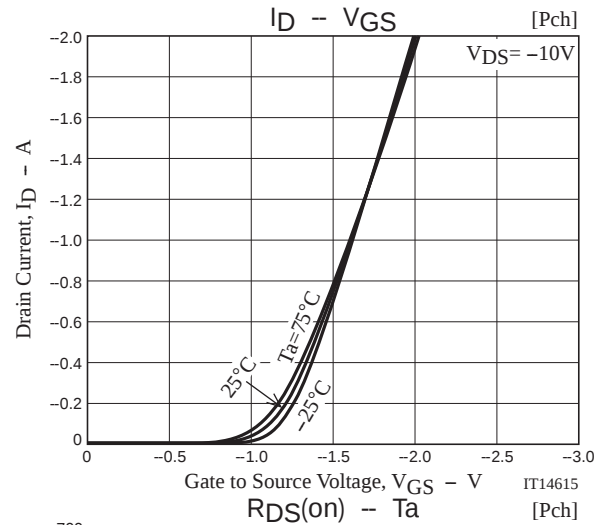
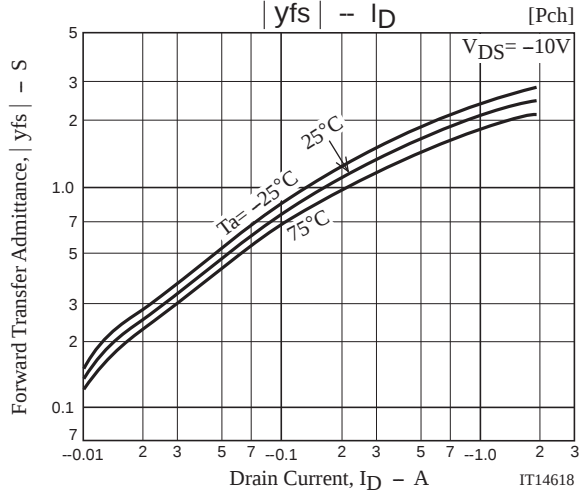
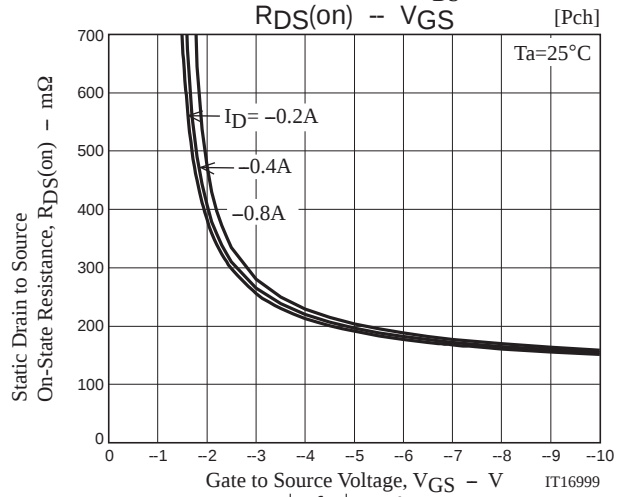
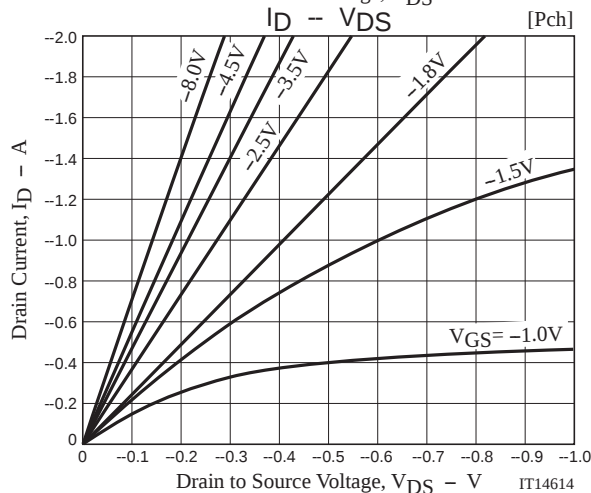
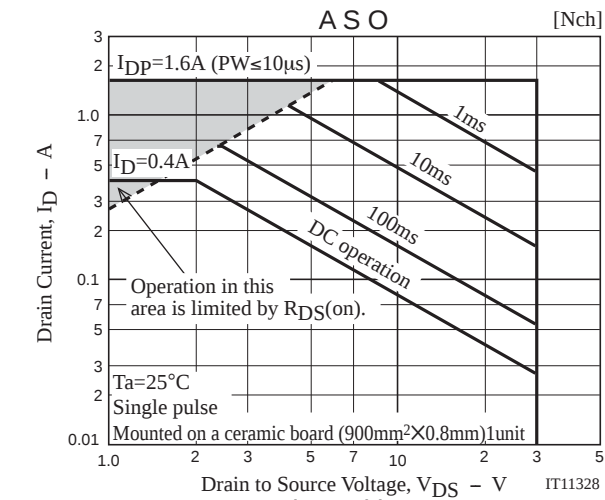
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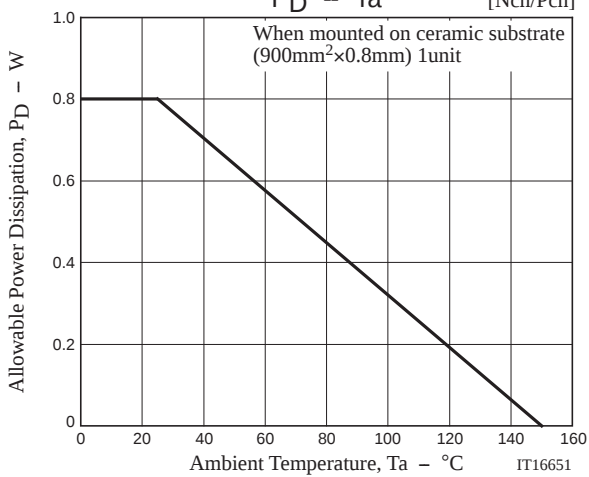
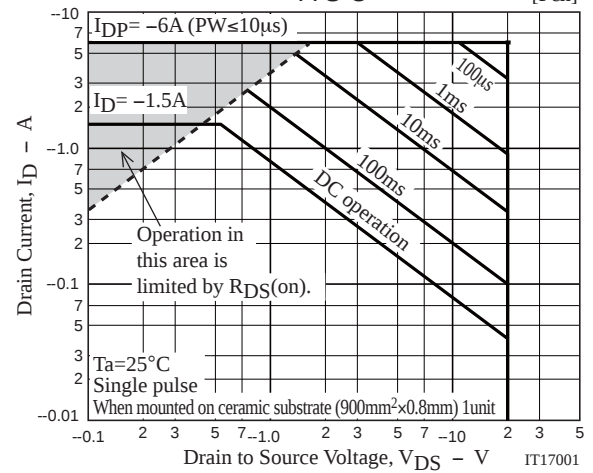
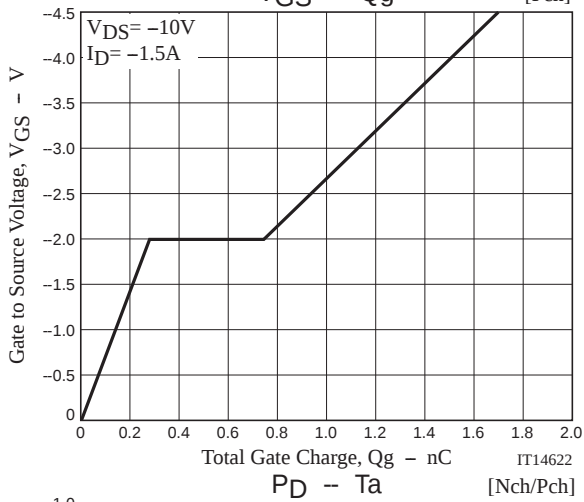
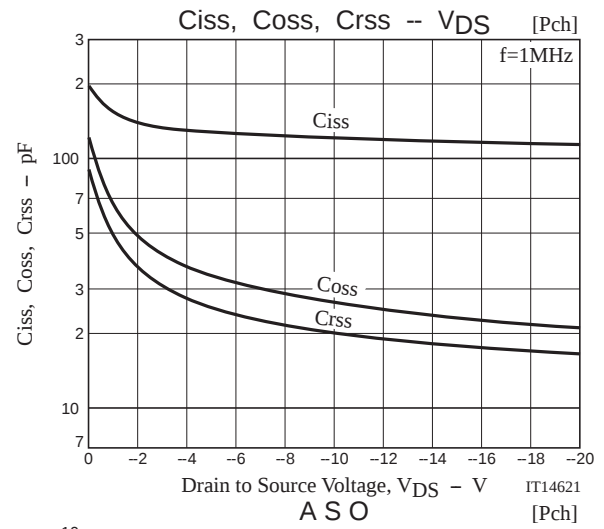
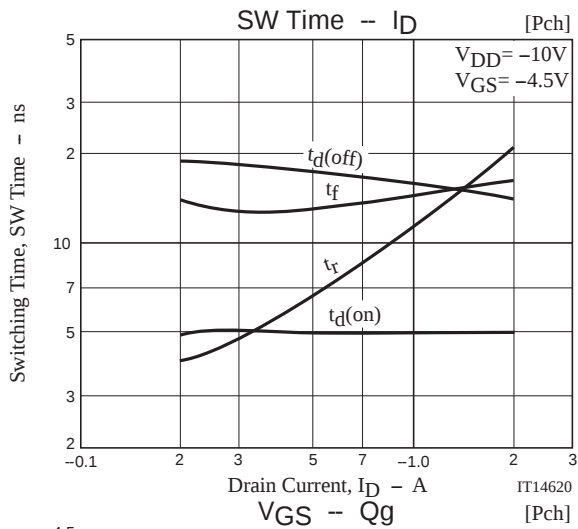


[P-channel]

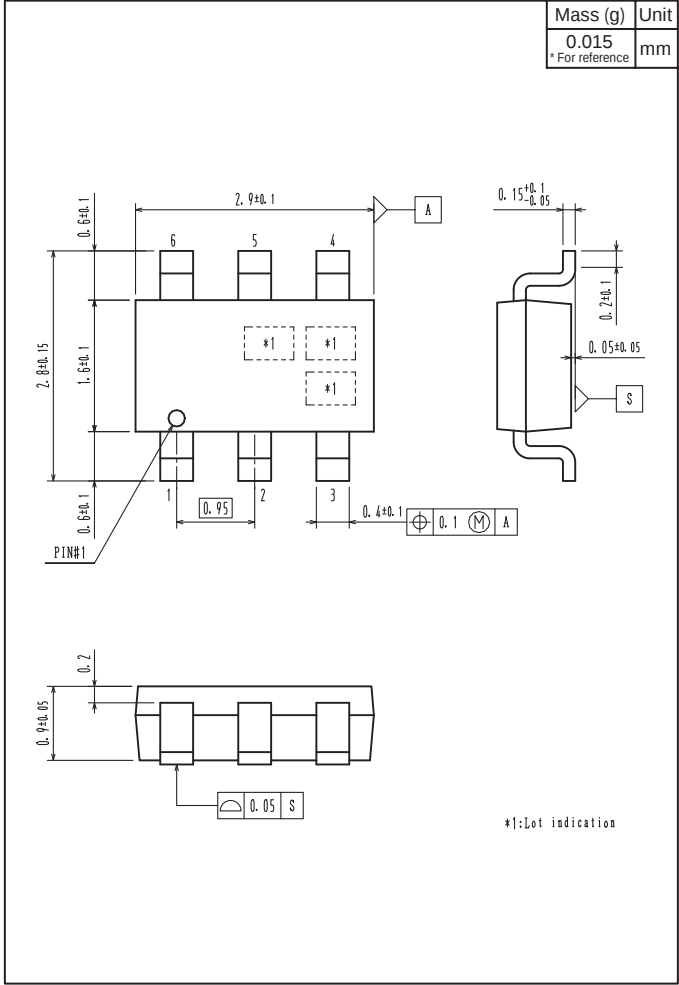




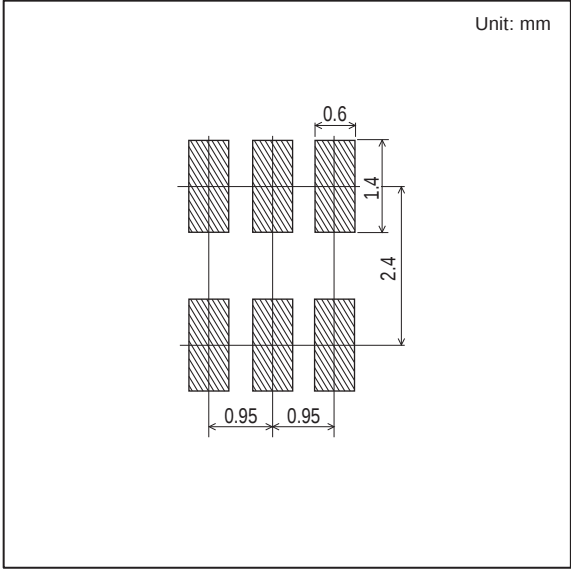




Outline Drawing
CPH6635-TL-H



Land Pattern Example



Note on usage : Since the CPH6635 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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