Ordering number : ENN8069

SANYO Semiconductors
DATA SHEET

N-Channel and P-Channel Silicon MOSFETs

CPH6615 — General-Purpose Switching Device Applications

Features

- The CPH6615 incorporates a N-channel MOSFET and a P-channel MOSFET that feature low ON-resistance, Ultrahigh-speed switching, thereby enabling high-density mounting.
- Excellent ON-resistance characteristic.
- Best suited for load switches.
- 4V drive.

Specifications

Absolute Maximum Ratings at Ta=25°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		2.5	−1.8	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	10	−7.2	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm²X0.8mm)1unit	0.9		W
Channel Temperature	Tch		150		°C
Storage Temperature	Tstg		−55 to +150		°C

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}=0	30			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=10V, I_D=1mA	1.2		2.6	V
Forward Transfer Admittance	$\|yfs\|$	V_{DS}=10V, I_D=1.5A	1.2	2.0		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=1.5A, V_{GS}=10V		79	105	mΩ
	R_{DS}(on)2	I_D=1A, V_{GS}=4V		150	210	mΩ
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		187		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		40		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		33		pF

Marking : WB

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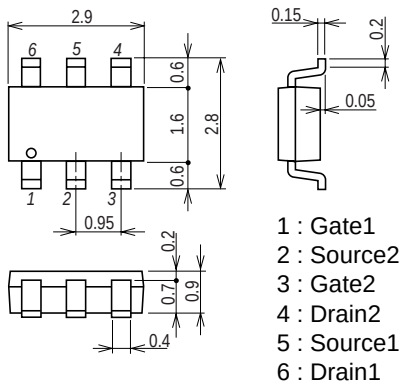
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		7.8		ns
Rise Time	t_r	See specified Test Circuit.		18.5		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		22		ns
Fall Time	t_f	See specified Test Circuit.		12		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=10V, I_D=2.5A		5.2		nC
Gate-to-Source Charge	Qgs	V_{DS}=10V, V_{GS}=10V, I_D=2.5A		1		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=10V, V_{GS}=10V, I_D=2.5A		0.97		nC
Diode Forward Voltage	V_{SD}	I_S=2.5A, V_{GS}=0		0.9	1.2	V
[P-channel]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=−1mA, V_{GS}=0	−30			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=−30V, V_{GS}=0			−1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0			±10	μA
Cutoff Voltage	$V_{GS(off)}$	V_{DS}=−10V, I_D=−1mA	−1.2		−2.6	V
Forward Transfer Admittance	$\|yfs\|$	V_{DS}=−10V, I_D=−1A	1.1	1.8		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	I_D=−1A, V_{GS}=−10V		180	235	mΩ
	$R_{DS(on)2}$	I_D=−0.5A, V_{GS}=−4V		320	450	mΩ
Input Capacitance	Ciss	V_{DS}=−10V, f=1MHz		226		pF
Output Capacitance	Coss	V_{DS}=−10V, f=1MHz		43		pF
Reverse Transfer Capacitance	Crss	V_{DS}=−10V, f=1MHz		36		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		8.5		ns
Rise Time	t_r	See specified Test Circuit.		10.5		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		29		ns
Fall Time	t_f	See specified Test Circuit.		22		ns
Total Gate Charge	Qg	V_{DS}=−10V, V_{GS}=−10V, I_D=−1.8A		5.5		nC
Gate-to-Source Charge	Qgs	V_{DS}=−10V, V_{GS}=−10V, I_D=−1.8A		1		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=−10V, V_{GS}=−10V, I_D=−1.8A		0.97		nC
Diode Forward Voltage	V_{SD}	I_S=−1.8A, V_{GS}=0		−0.91	−1.5	V

Package Dimensions

unit : mm

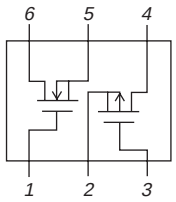
2238



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

SANYO : CPH6

Electrical Connection

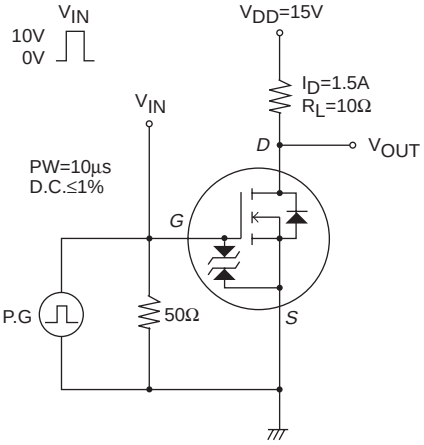


1 : Gate1
2 : Source2
3 : Gate2
4 : Drain2
5 : Source1
6 : Drain1

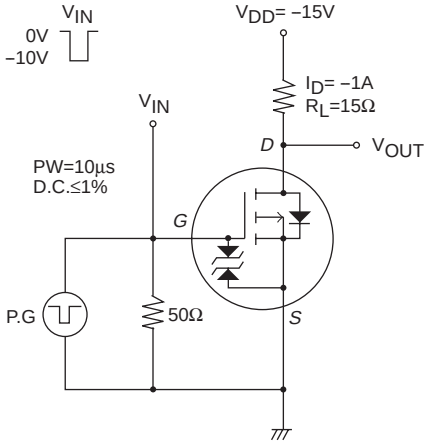
Top view

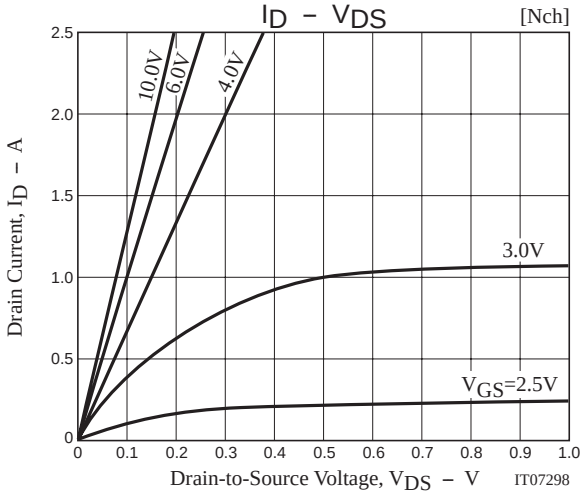
Switching Time Test Circuit

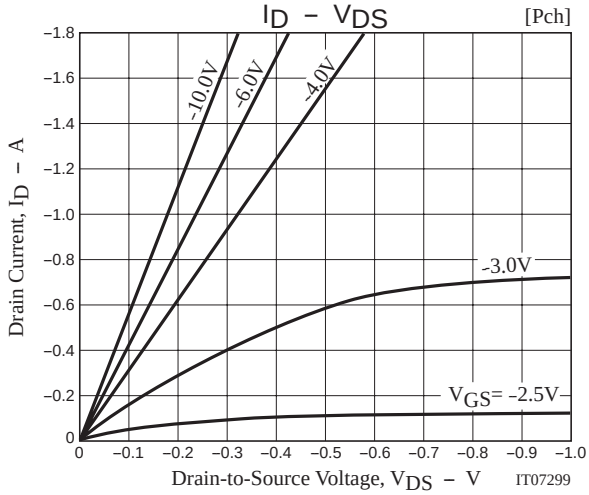
[N-channel]

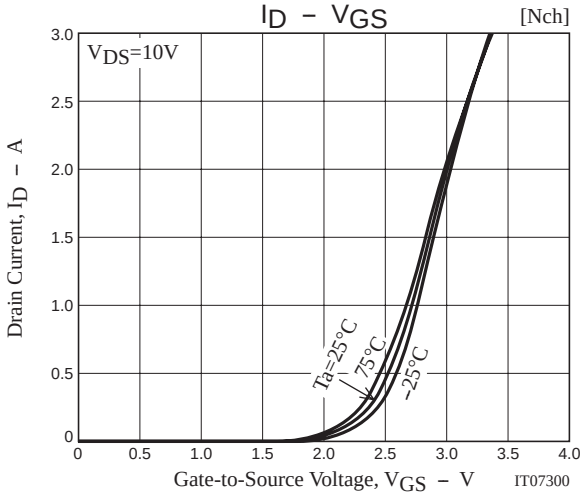


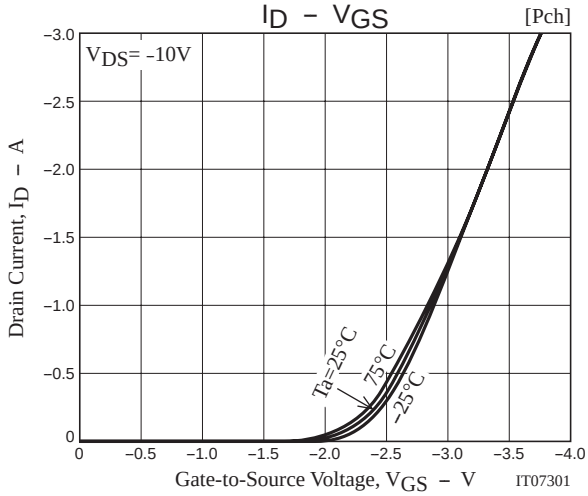
[P-channel]

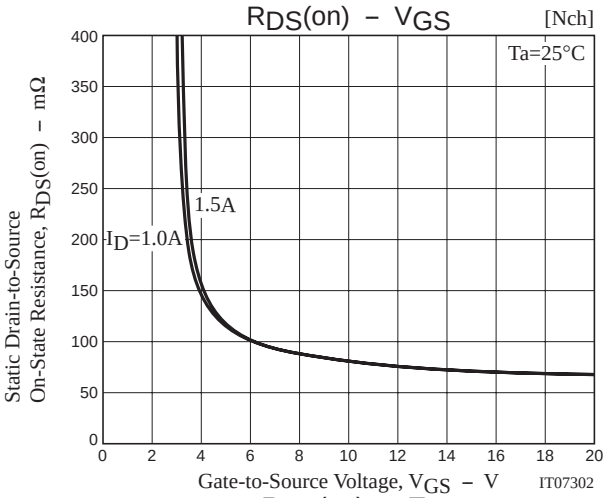


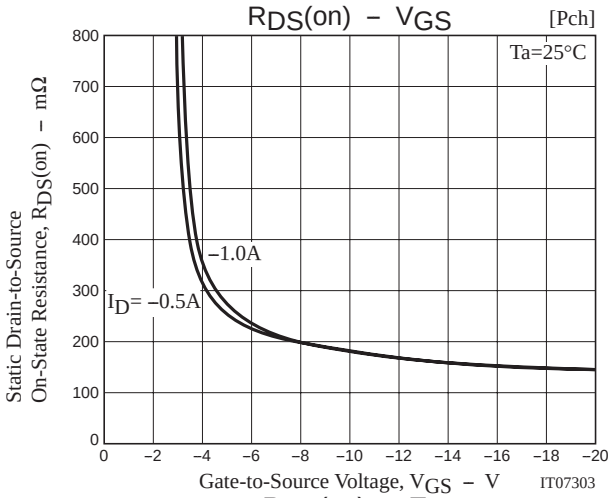


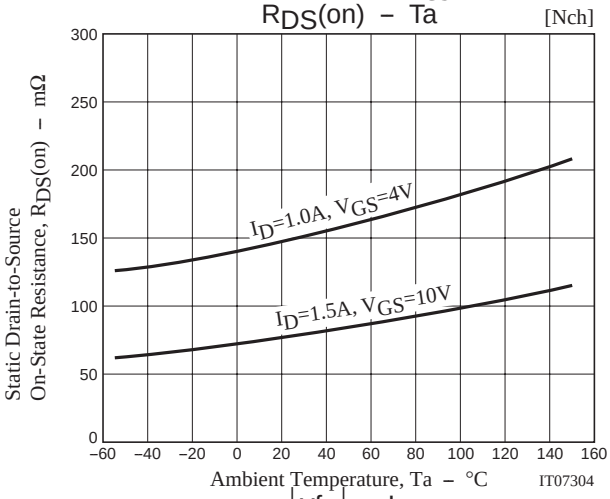


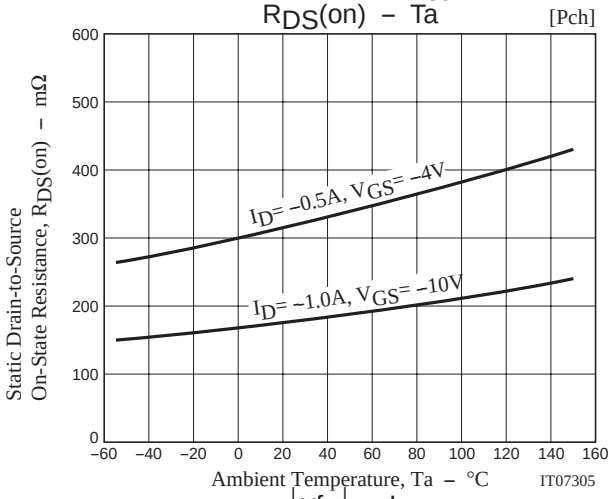


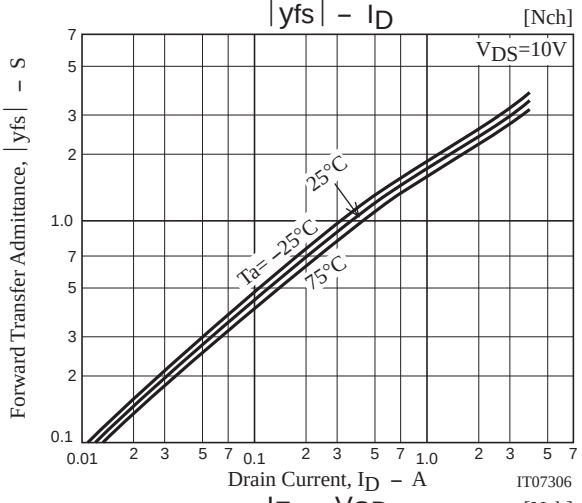


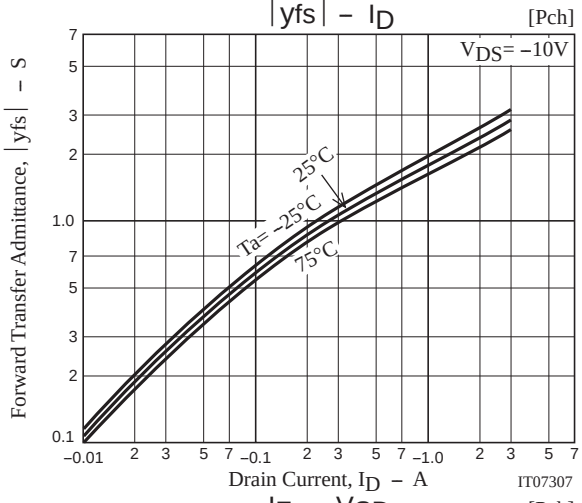


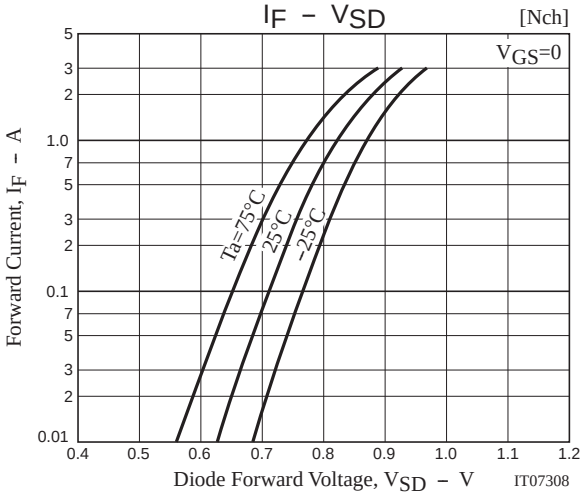


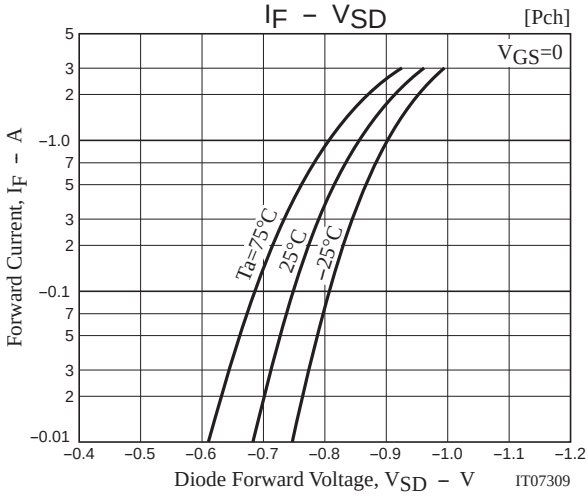


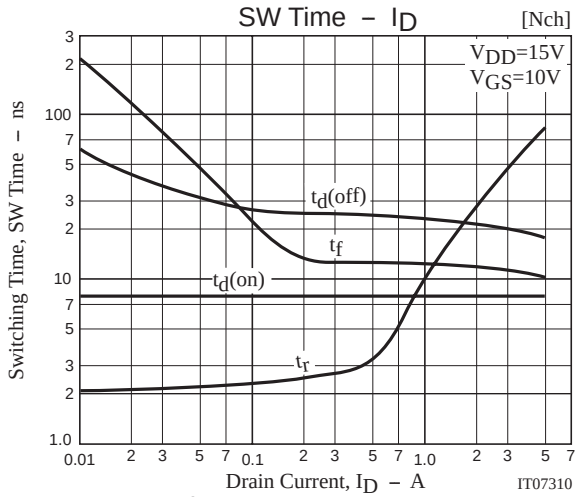


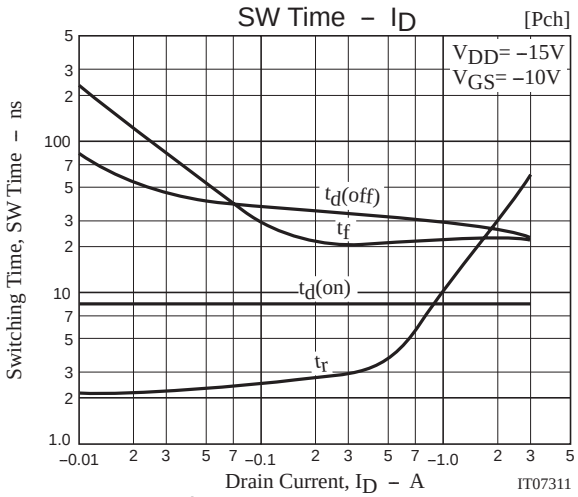


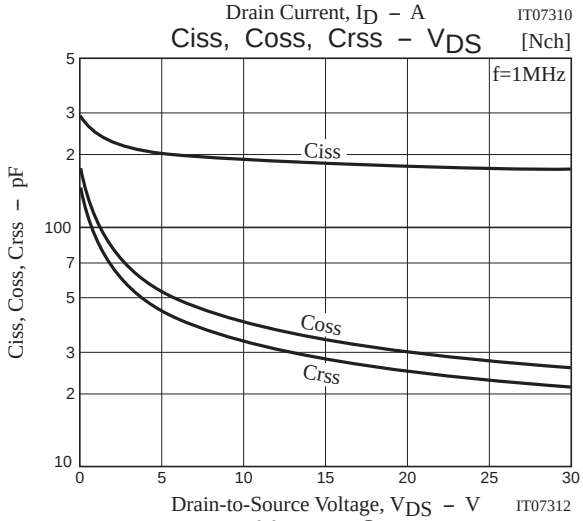


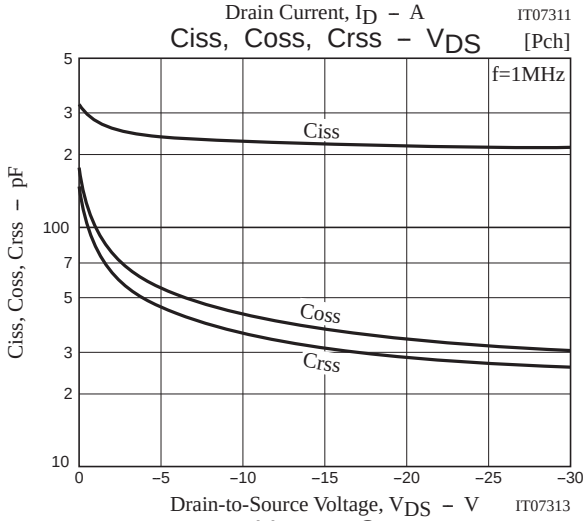


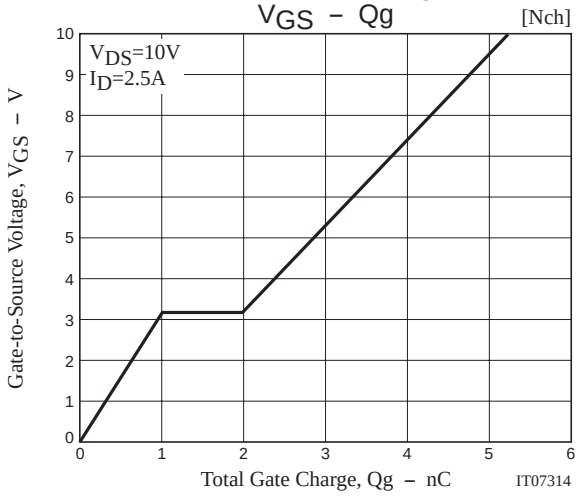


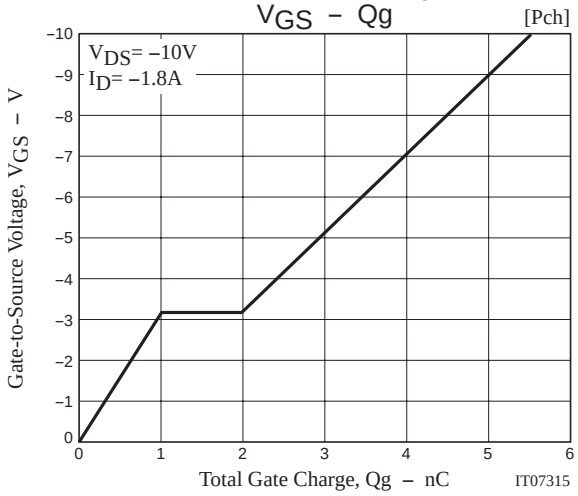


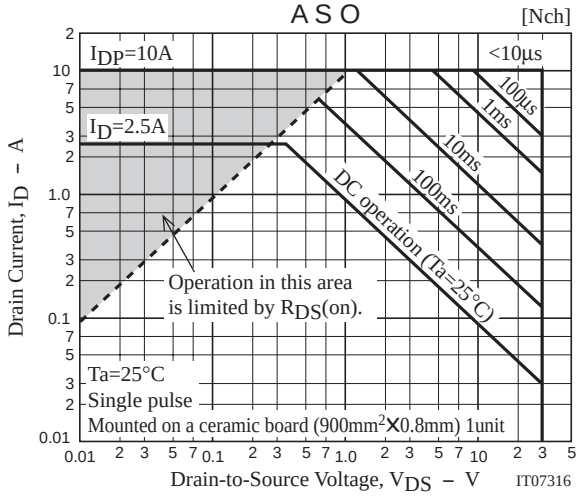


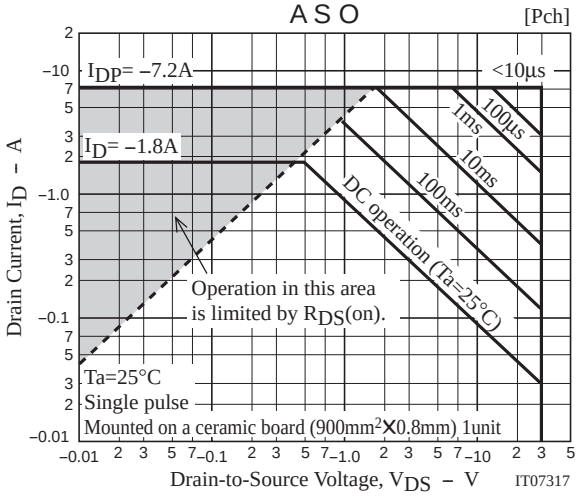


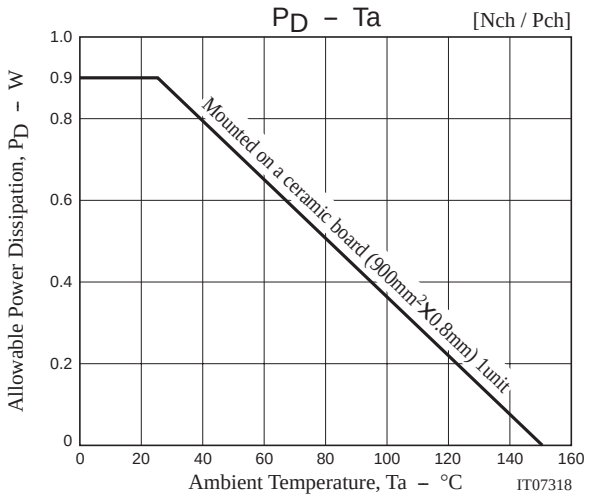












Note on usage : Since the CPH6615 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.