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DATA SHEET

N-Channel Silicon MOSFET

CPH6414 — **General-Purpose Switching Device**
Applications**Features**

- Low ON-resistance.
- 4V drive.

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		30	V
Gate-to-Source Voltage	V_{GS}		± 20	V
Drain Current (DC)	I_D		5	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycles $\leq 1\%$	20	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (1200mm ² ×0.8mm)	1.6	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}$, $V_{GS}=0\text{V}$	30			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30\text{V}$, $V_{GS}=0\text{V}$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 16\text{V}$, $V_{DS}=0\text{V}$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}$, $I_D=1\text{mA}$	1.2		2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$, $I_D=3\text{A}$	3.1	4.5		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=3\text{A}$, $V_{GS}=10\text{V}$		37	48	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=1.5\text{A}$, $V_{GS}=4\text{V}$		63	88	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS}=10\text{V}$, $f=1\text{MHz}$		460		pF
Output Capacitance	C_{oss}	$V_{DS}=10\text{V}$, $f=1\text{MHz}$		95		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=10\text{V}$, $f=1\text{MHz}$		75		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		11		ns
Rise Time	t_r	See specified Test Circuit.		12		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		31		ns
Fall Time	t_f	See specified Test Circuit.		18		ns

Marking : KQ

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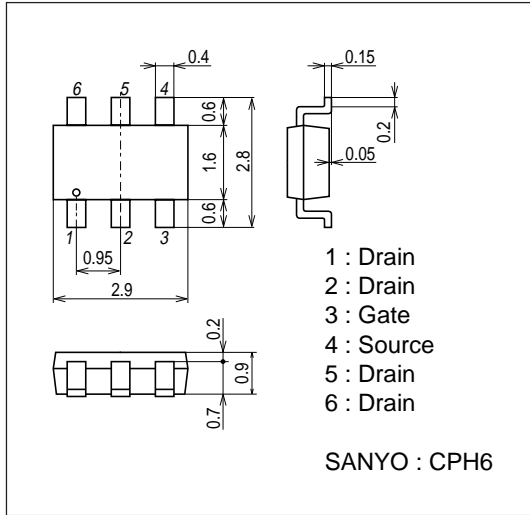
CPH6414

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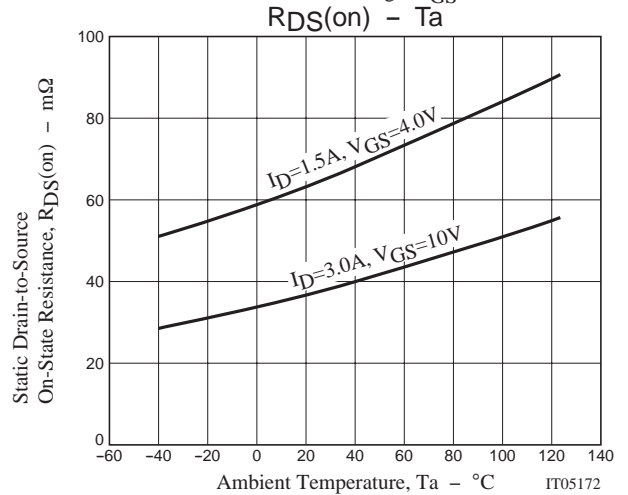
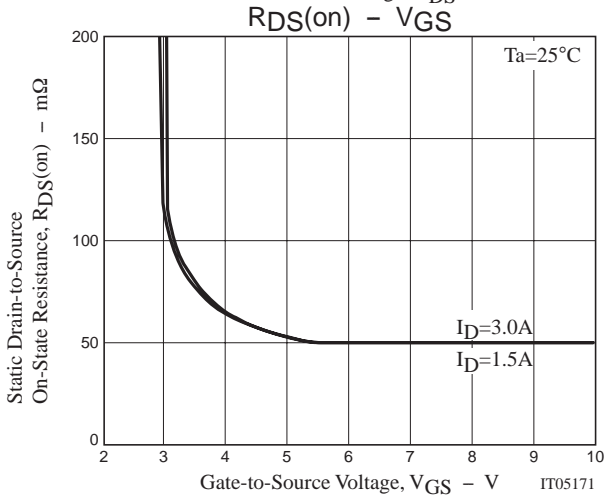
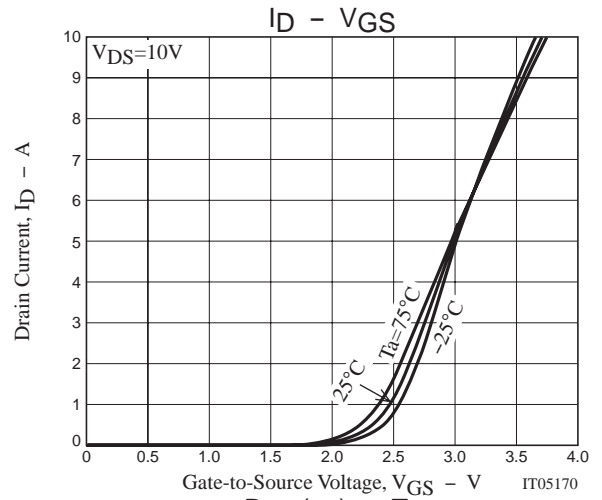
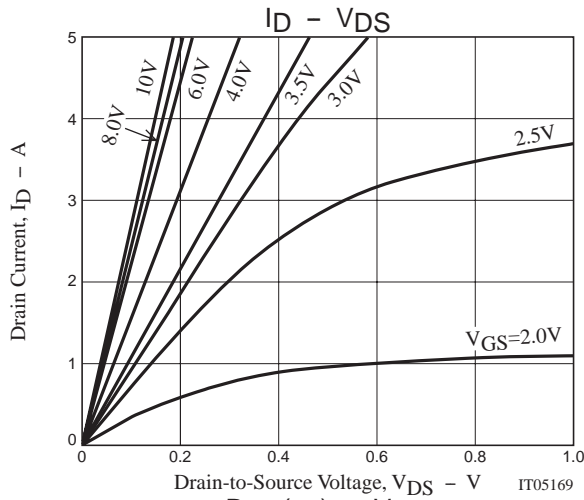
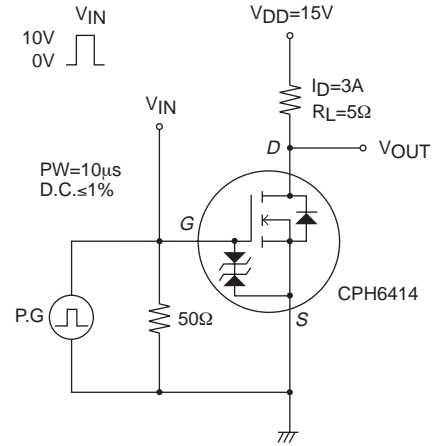
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	V _{DS} =10V, V _{GS} =10V, I _D =5A		8.5		nC
Gate-to-Source Charge	Qgs	V _{DS} =10V, V _{GS} =10V, I _D =5A		1.8		nC
Gate-to-Drain "Miller" Charge	Qgd	V _{DS} =10V, V _{GS} =10V, I _D =5A		1.3		nC
Diode Forward Voltage	V _{SD}	I _S =5A, V _{GS} =0V		0.86	1.2	V

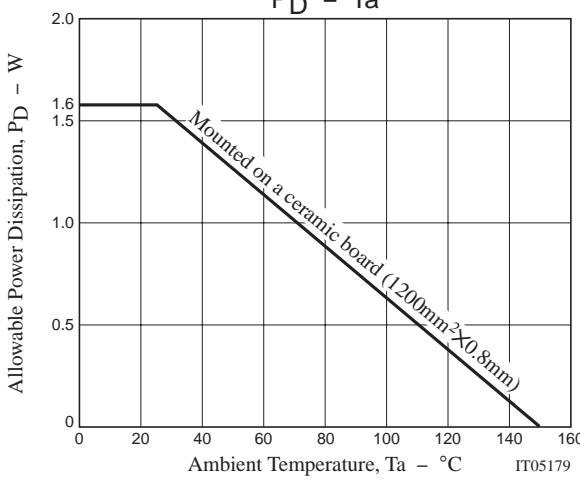
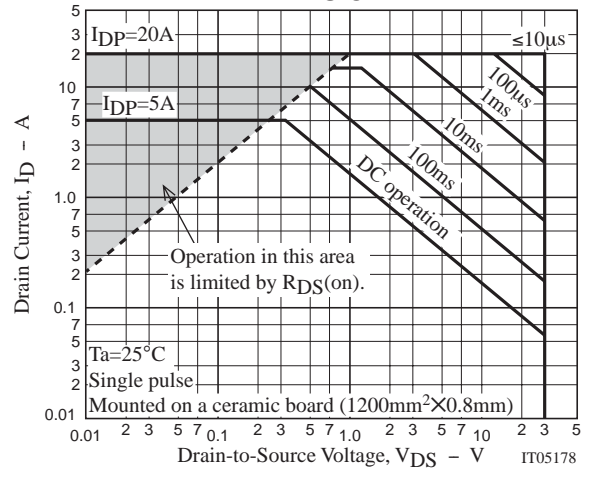
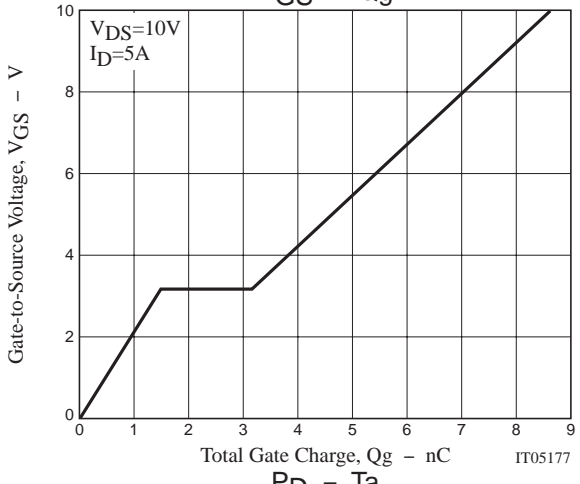
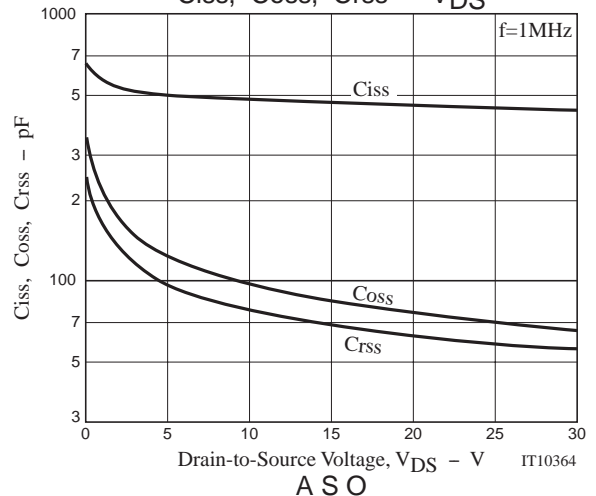
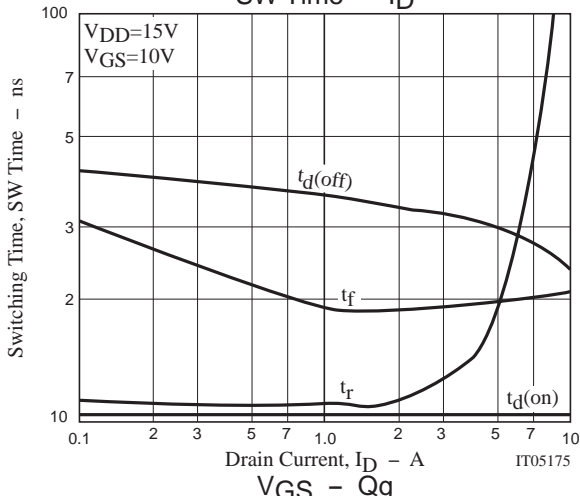
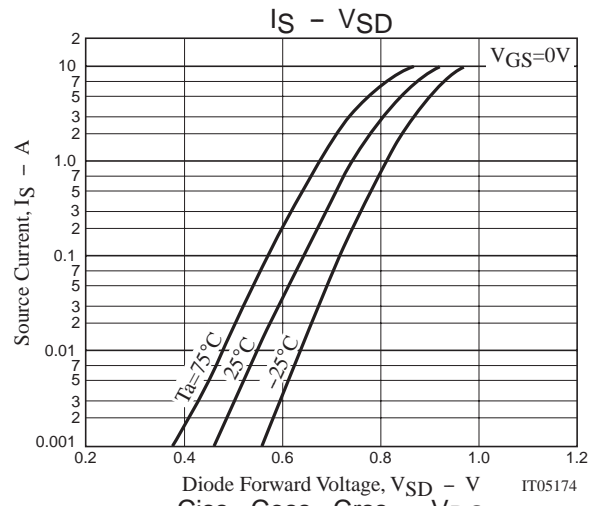
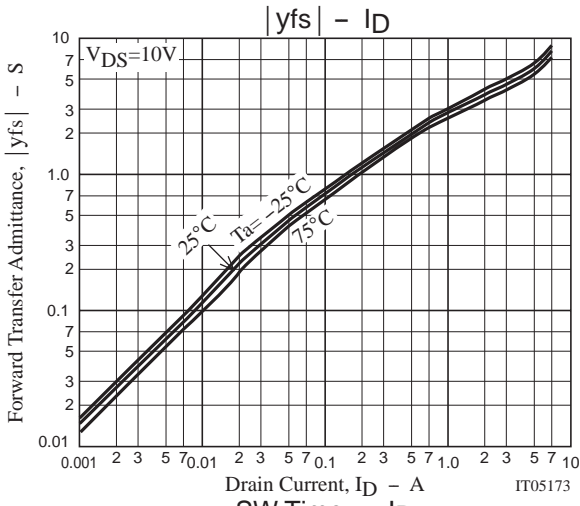
Package Dimensions

unit : mm
7018-003



Switching Time Test Circuit





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