



CPH6434 — N-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- Ultrahigh-speed switching.
- 1.8V 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}		± 10	V
Drain Current (DC)	I_D		6	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	24	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (900mm ² X0.8mm)	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}	$V_{GS}=\pm 8\text{V}$, $V_{DS}=0\text{V}$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}$, $I_D=1\text{mA}$	0.4		1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$, $I_D=3\text{A}$	4.4	7.4		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=3\text{A}$, $V_{GS}=4\text{V}$		31	41	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=1.5\text{A}$, $V_{GS}=2.5\text{V}$		40	57	$\text{m}\Omega$
	$R_{DS(on)3}$	$I_D=0.3\text{A}$, $V_{GS}=1.8\text{V}$		55	90	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS}=10\text{V}$, $f=1\text{MHz}$		790		pF
Output Capacitance	C_{oss}	$V_{DS}=10\text{V}$, $f=1\text{MHz}$		125		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=10\text{V}$, $f=1\text{MHz}$		110		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		16.5		ns
Rise Time	t_r	See specified Test Circuit.		78		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		77		ns
Fall Time	t_f	See specified Test Circuit.		125		ns

Marking : ZL

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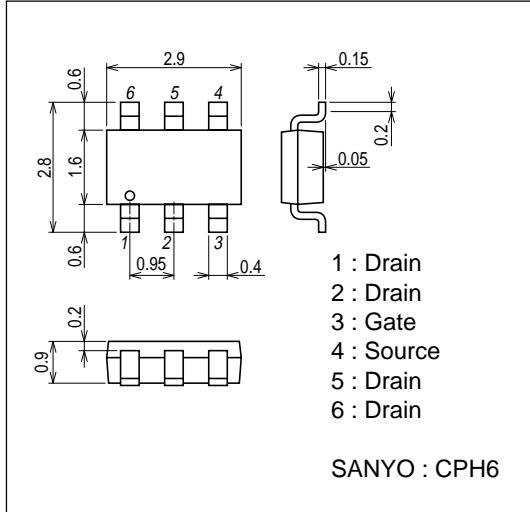
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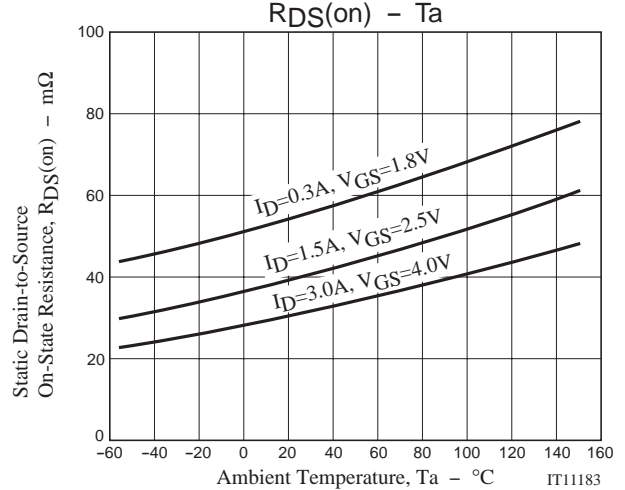
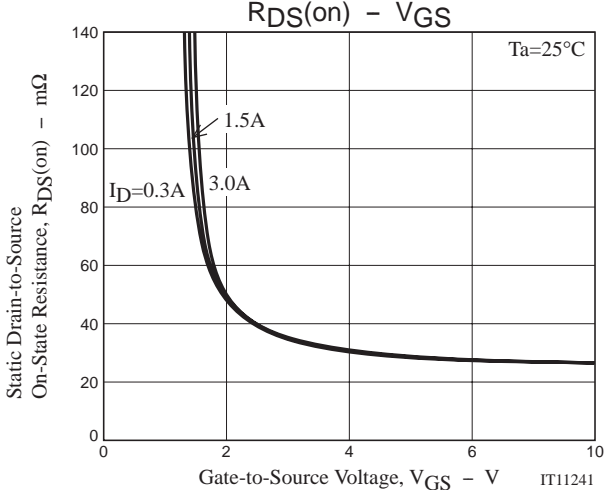
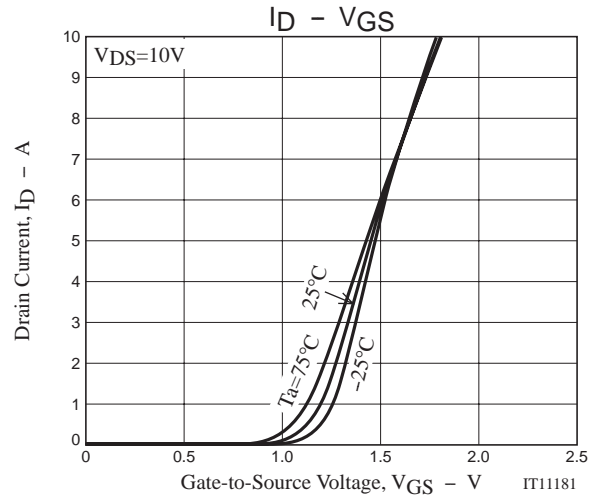
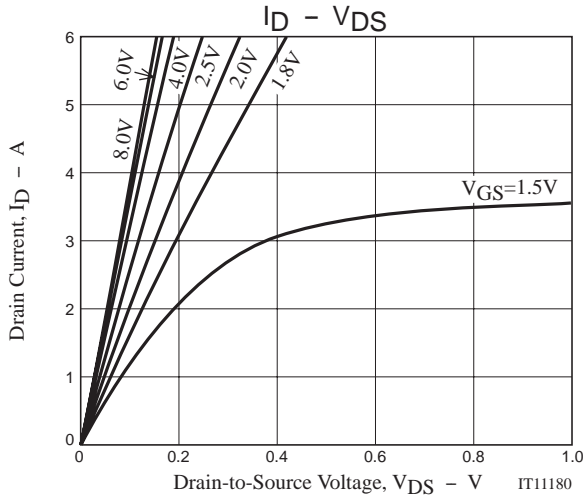
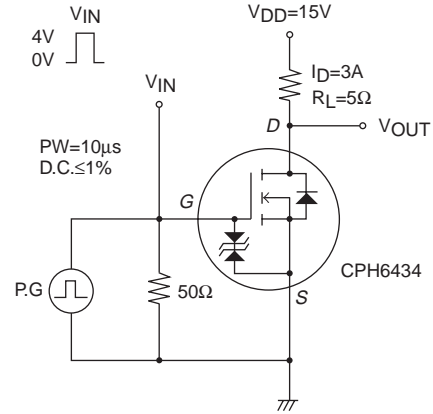
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	V _{DS} =10V, V _{GS} =4V, I _D =6A		7.0		nC
Gate-to-Source Charge	Qgs	V _{DS} =10V, V _{GS} =4V, I _D =6A		1.8		nC
Gate-to-Drain "Miller" Charge	Qgd	V _{DS} =10V, V _{GS} =4V, I _D =6A		1.9		nC
Diode Forward Voltage	V _{SD}	I _S =6A, V _{GS} =0V		0.86	1.2	V

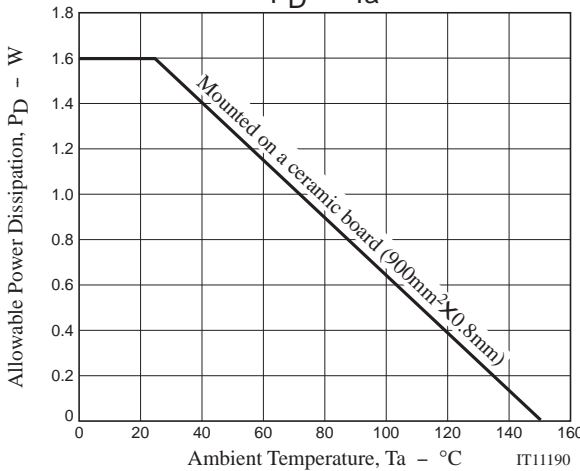
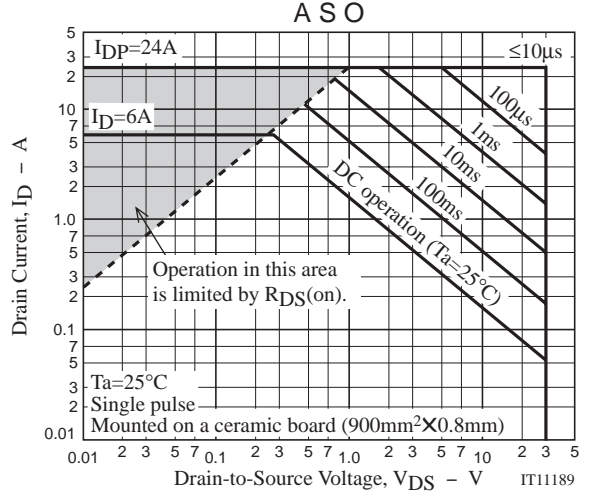
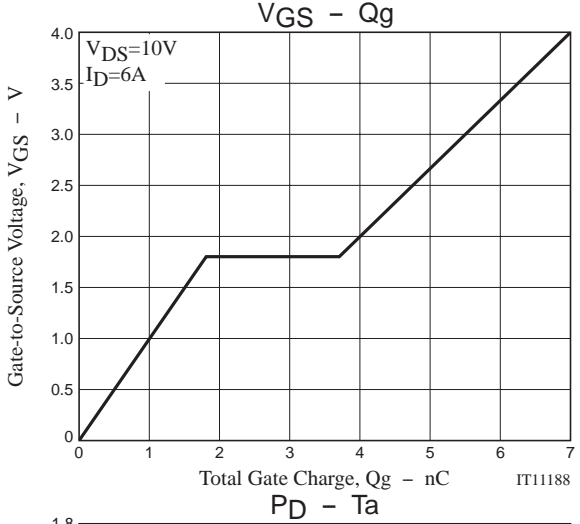
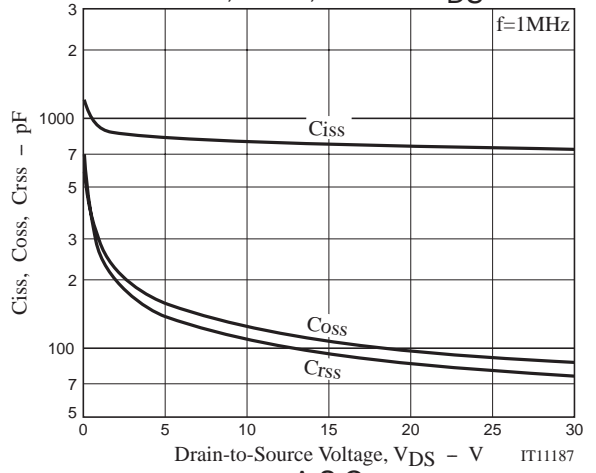
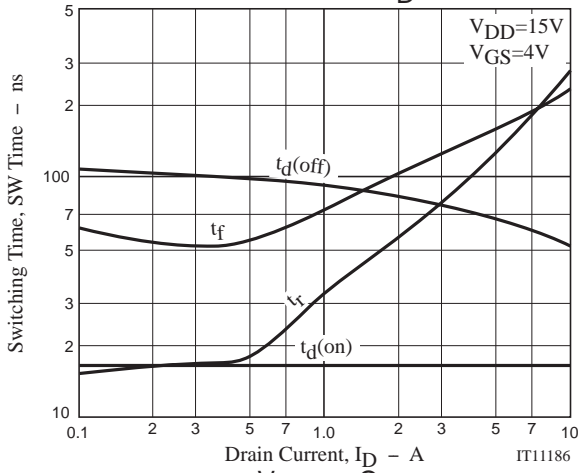
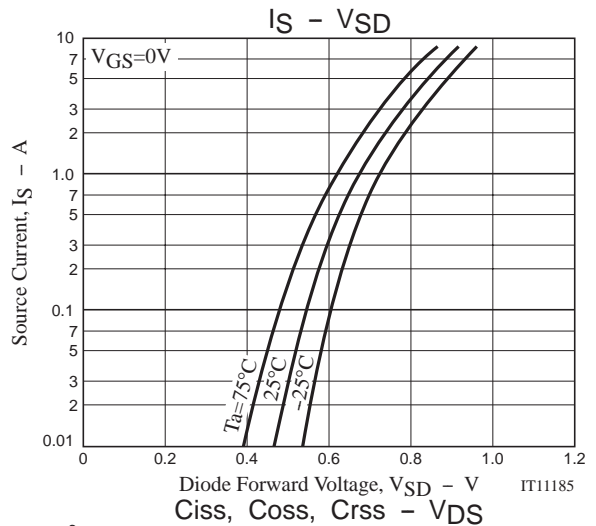
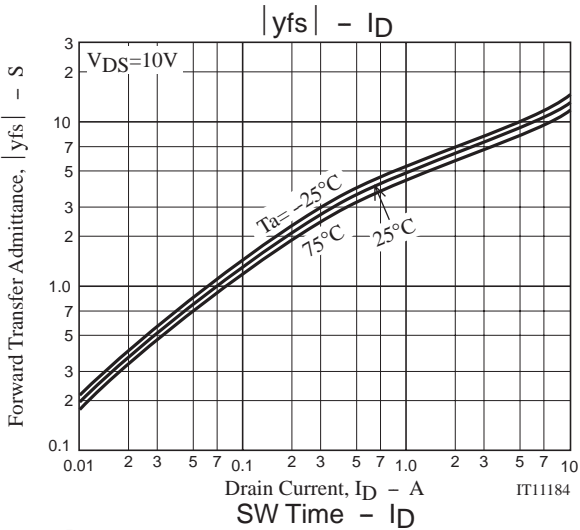
Package Dimensions

unit : mm
7018A-003



Switching Time Test Circuit





Note on usage : Since the CPH6434 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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