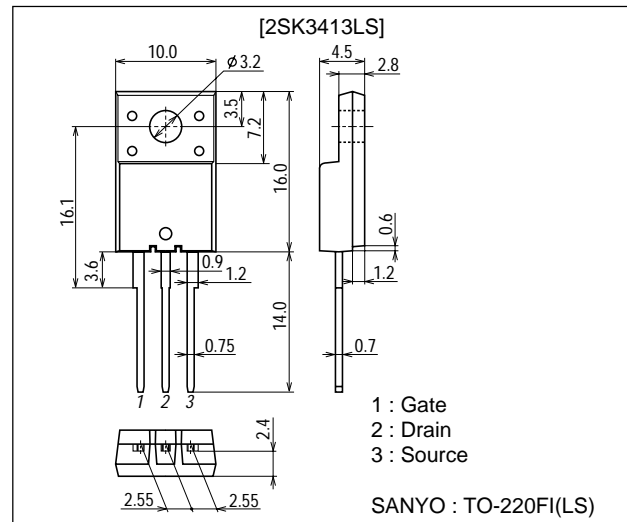


**2SK3413LS****DC / DC Converter Applications****Features**

- Low ON-resistance.
- 4V drive.

**Package Dimensions**unit : mm  
2078C**Specifications**Absolute Maximum Ratings at  $T_a=25^\circ\text{C}$ 

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		60	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 20$	V
Drain Current (DC)	$I_D$		25	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	100	A
Allowable Power Dissipation	$P_D$		2.0	W
		$T_c=25^\circ\text{C}$	25	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	$V_{(BR)DSS}$	$I_D=1\text{mA}$ , $V_{GS}=0$	60			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=60\text{V}$ , $V_{GS}=0$			10	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 16\text{V}$ , $V_{DS}=0$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}$ , $I_D=1\text{mA}$	1.0		2.4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$ , $I_D=12\text{A}$	16	23		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=12\text{A}$ , $V_{GS}=10\text{V}$		25	33	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=12\text{A}$ , $V_{GS}=4\text{V}$		35	49	$\text{m}\Omega$

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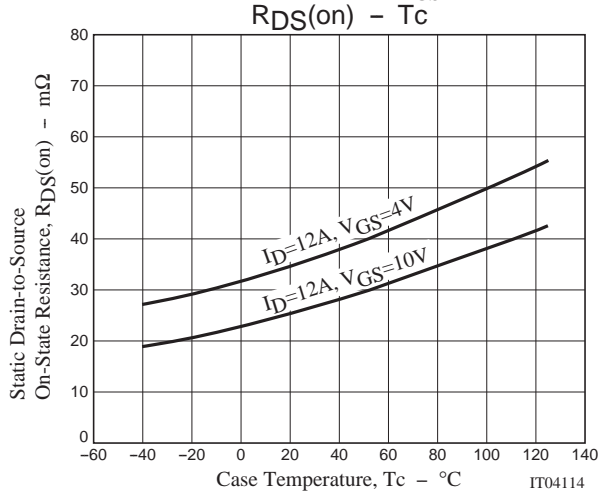
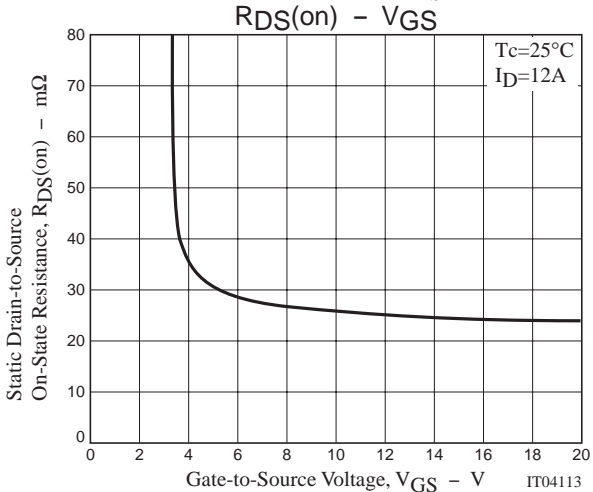
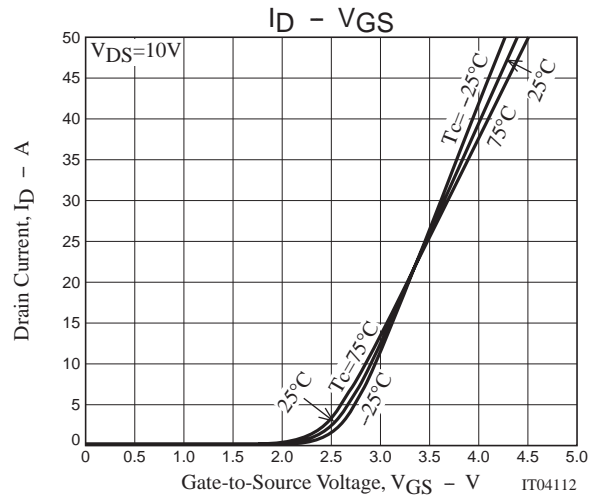
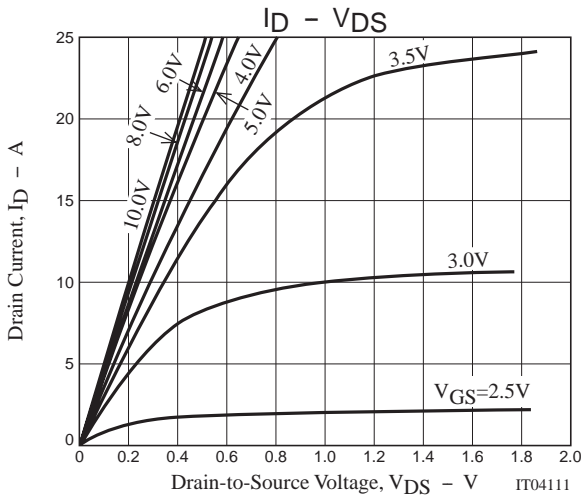
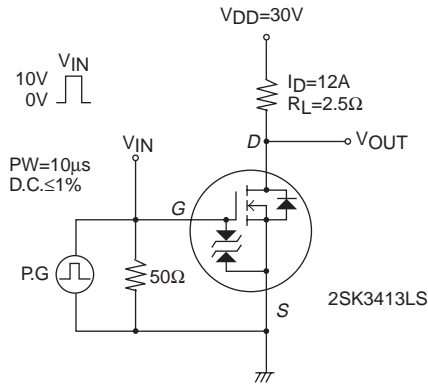
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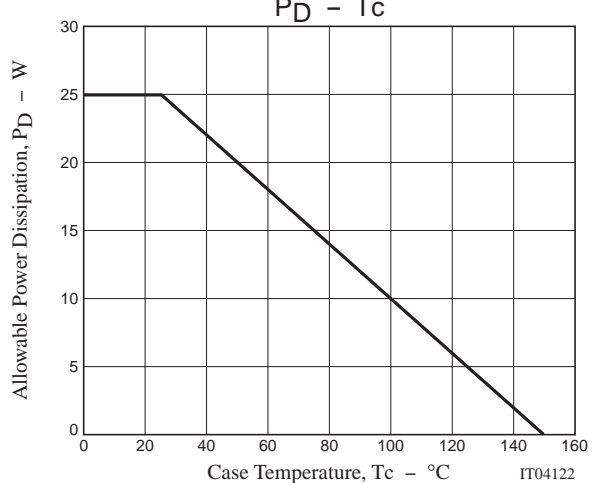
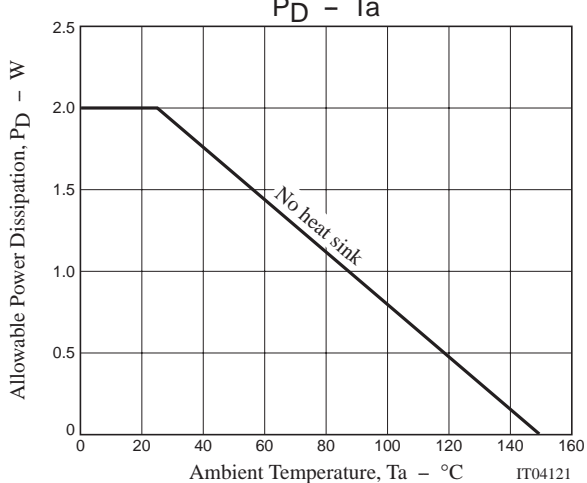
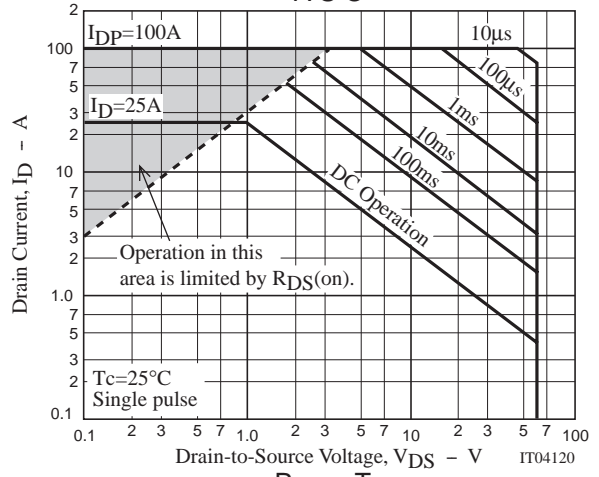
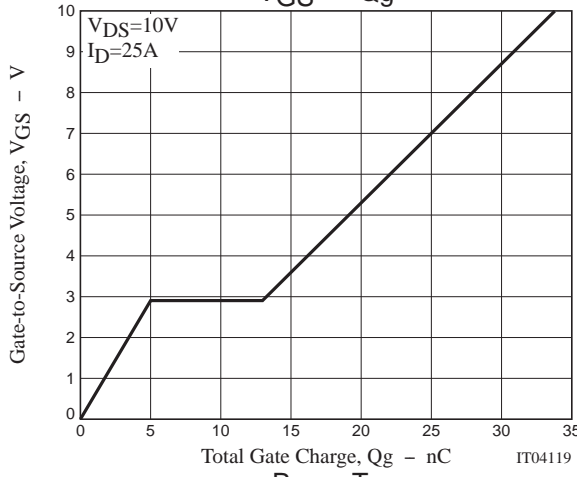
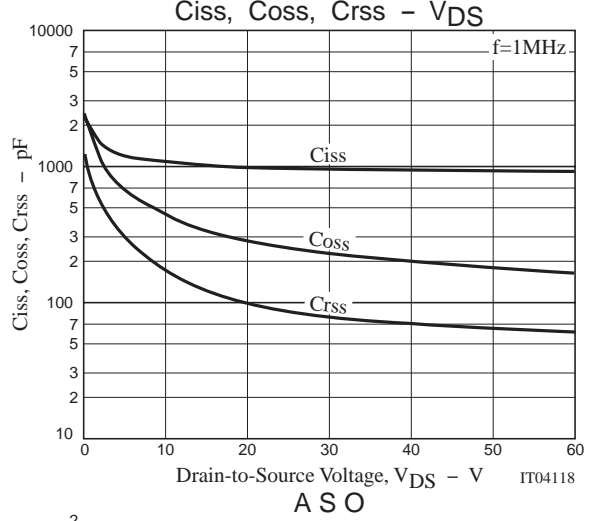
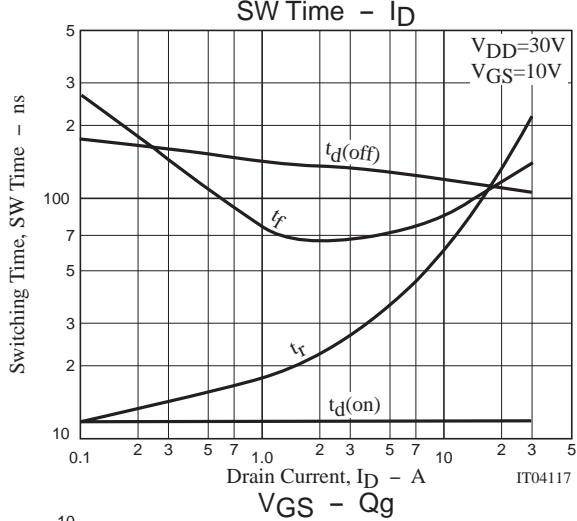
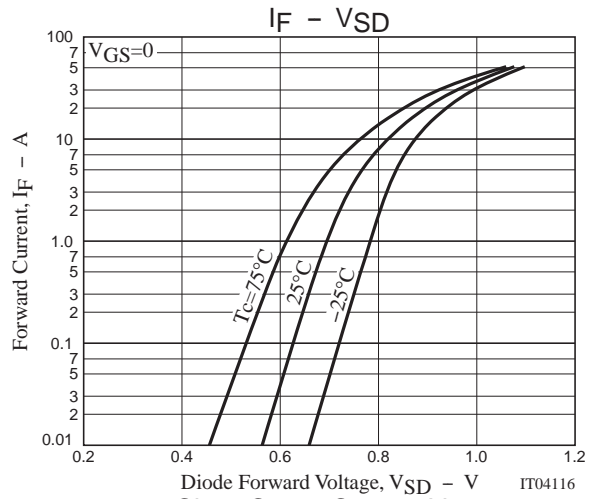
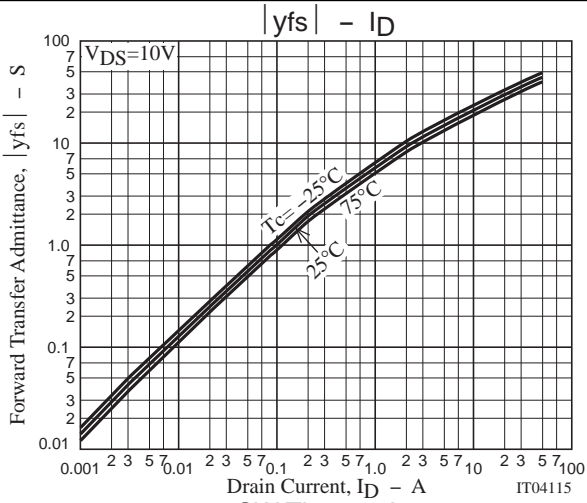
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V <sub>DS</sub> =20V, f=1MHz		1000		pF
Output Capacitance	Coss	V <sub>DS</sub> =20V, f=1MHz		280		pF
Reverse Transfer Capacitance	Crss	V <sub>DS</sub> =20V, f=1MHz		100		pF
Turn-ON Delay Time	t <sub>d(on)</sub>	See specified Test Circuit.		12		ns
Rise Time	t <sub>r</sub>	See specified Test Circuit.		72		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>	See specified Test Circuit.		120		ns
Fall Time	t <sub>f</sub>	See specified Test Circuit.		90		ns
Total Gate Charge	Qg	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =25A		34		nC
Gate-to-Source Charge	Qgs	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =25A		5		nC
Gate-to-Drain "Miller" Charge	Qgd	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =25A		8		nC
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =25A, V <sub>GS</sub> =0	0.93		1.2	V

## Switching Time Test Circuit



# 2SK3413LS



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