



2SK2977LS

DC/DC Converter Applications

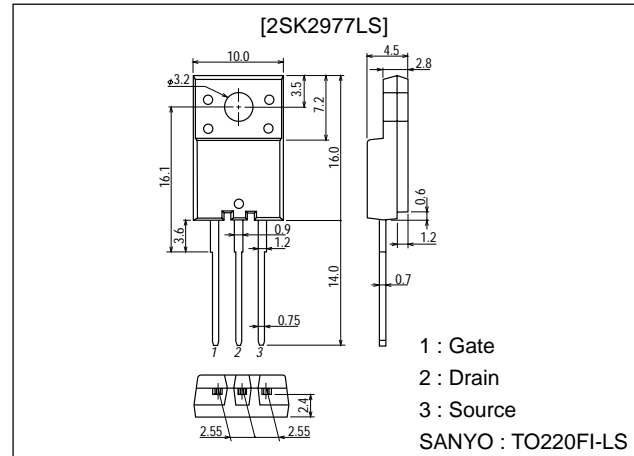
Features

- Low ON resistance.
- 4V drive.

Package Dimensions

unit:mm

2078B



Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		30	V
Gate-to-Source Voltage	V_{GSS}		± 20	V
Drain Current (DC)	I_D		30	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	120	A
Allowable Power Dissipation	P_D		2.0	W
		$T_c = 25^\circ C$	30	W
Channel Temperature	T_{ch}		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$

Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 1mA$, $V_{GS} = 0$	30			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 30V$, $V_{GS} = 0$			10	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 16V$, $V_{DS} = 0$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = 10V$, $I_D = 1mA$	1.0		2.4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = 10V$, $I_D = 18A$	15	27		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$V_{GS} = 10V$, $I_D = 18A$		15	22	$m\Omega$
	$R_{DS(on)2}$	$V_{GS} = 4V$, $I_D = 18A$		25	35	$m\Omega$

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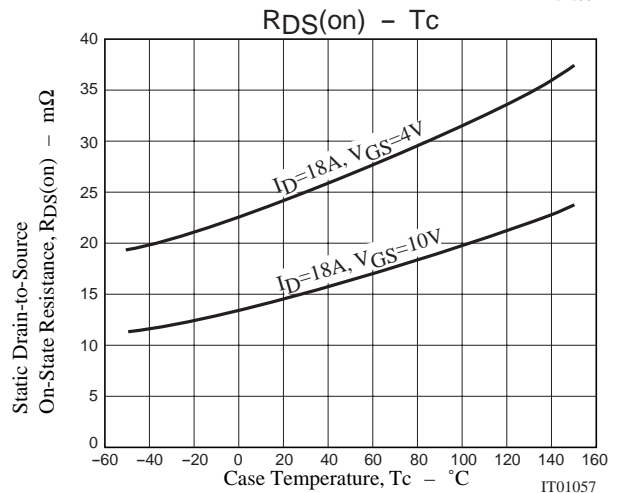
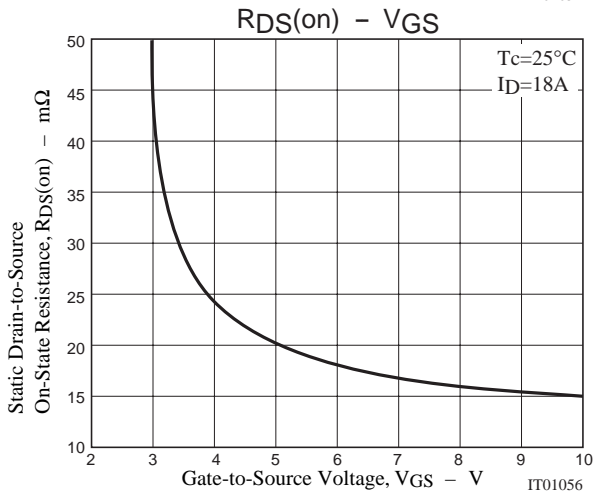
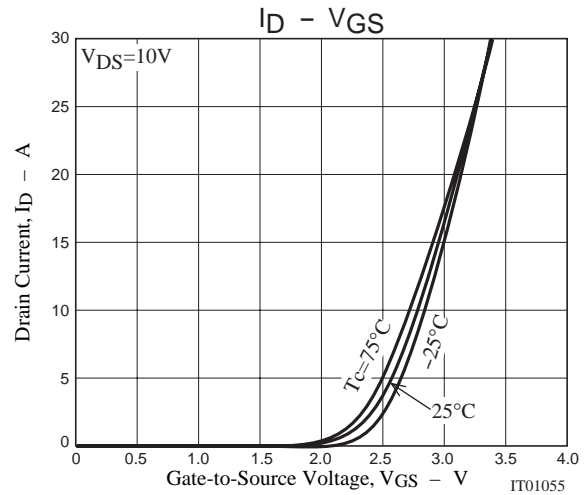
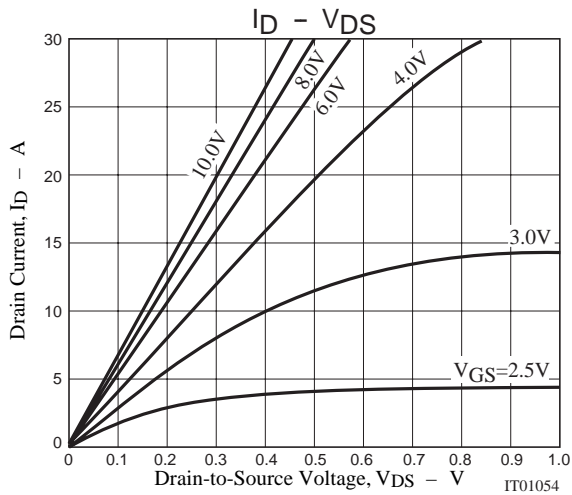
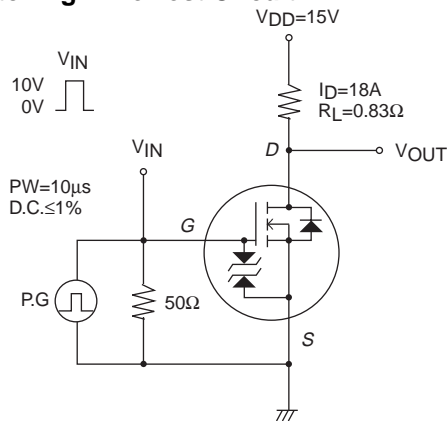
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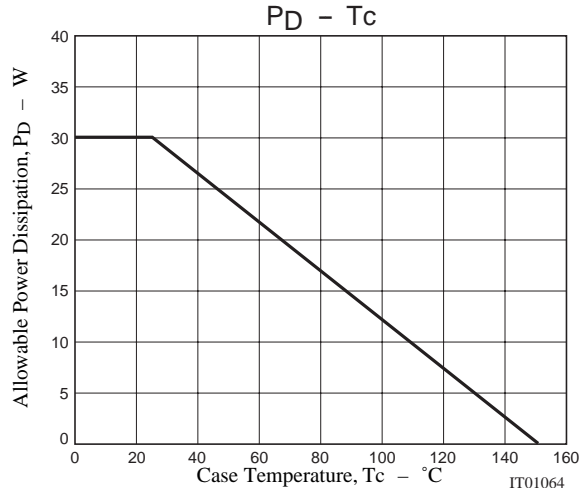
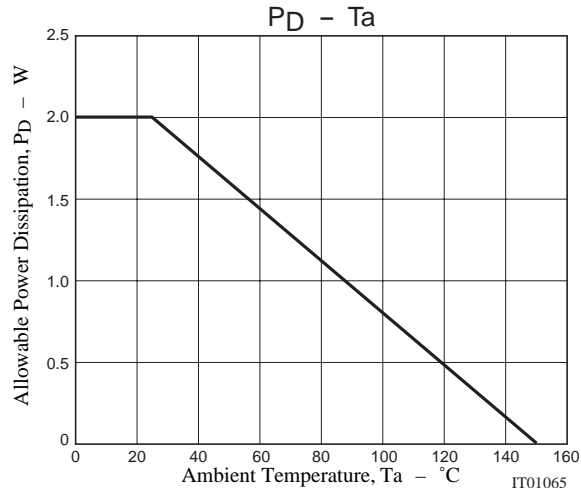
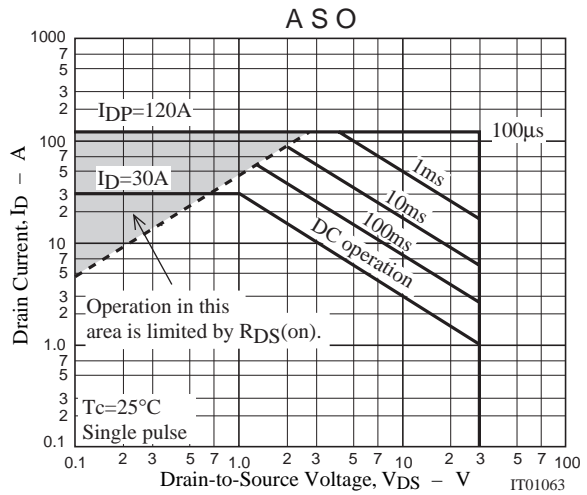
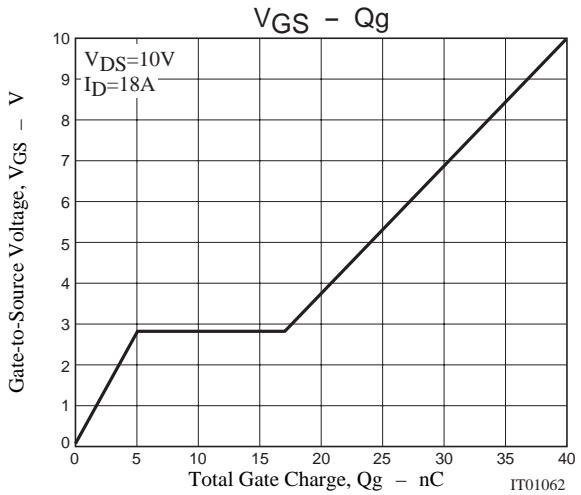
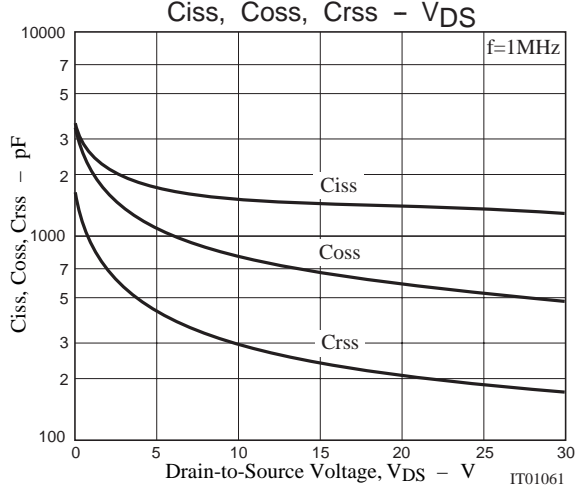
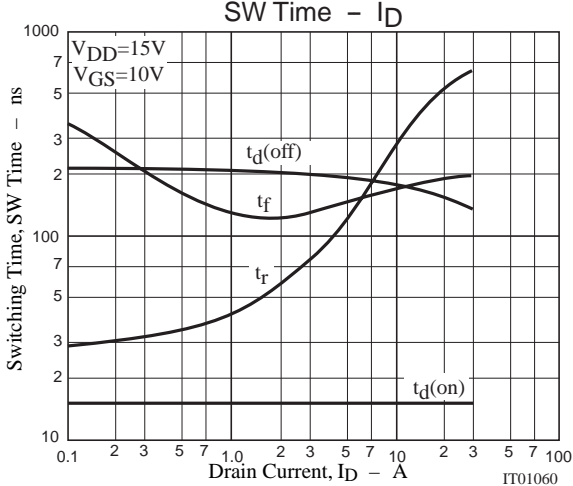
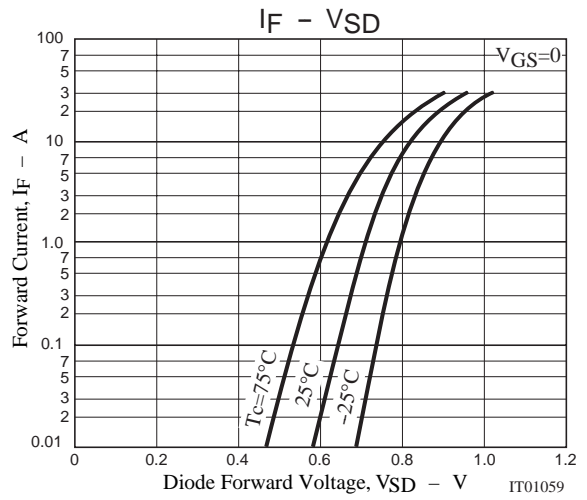
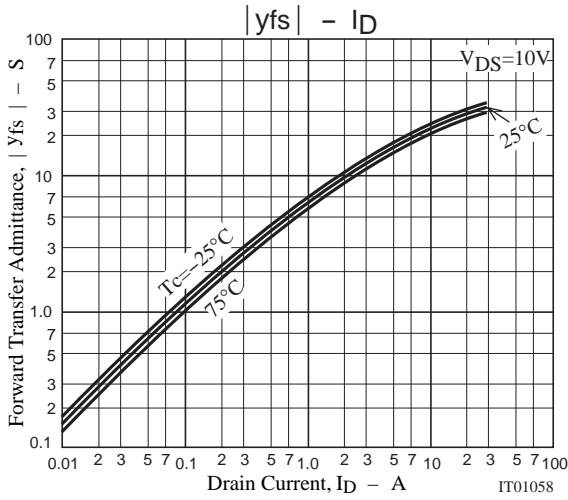
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	C_{iss}	$V_{DS}=10V, f=1MHz$		1600		pF
Output Capacitance	C_{oss}	$V_{DS}=10V, f=1MHz$		800		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=10V, f=1MHz$		300		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		15		ns
Rise Time	t_r	See specified Test Circuit		450		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		150		ns
Fall Time	t_f	See specified Test Circuit		180		ns
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=10V, I_D=18A$		40		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=10V, V_{GS}=10V, I_D=18A$		5		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=10V, V_{GS}=10V, I_D=18A$		12		nC
Diode Forward Voltage	V_{SD}	$I_S=30A, V_{GS}=0$		1.0	1.2	V

Switching Time Test Circuit



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