



2SK1413

Ultrahigh-Speed Switching Applications

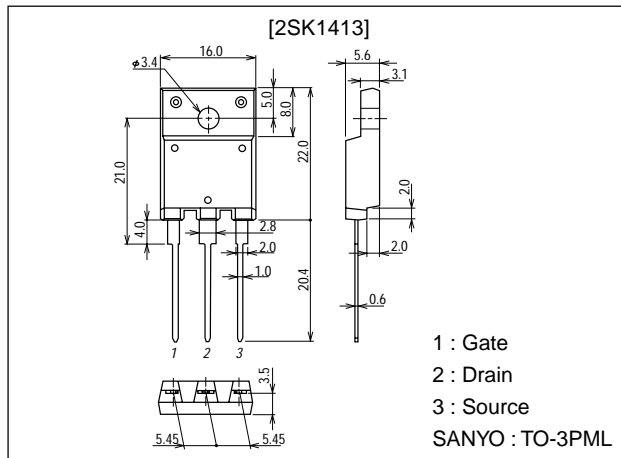
Features

- Low ON resistance, low input capacitance, Ultrahigh-speed switching.
- High reliability (Adoption of HVP process).
- Micaless package facilitating mounting.

Package Dimensions

unit:mm

2076B



Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		1500	V
Gate-to-Source Voltage	V_{GSS}		± 20	V
Drain Current (DC)	I_D		2	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	4	A
Allowable Power Dissipation	P_D		3.0	W
		$T_c = 25^\circ C$	60	W
Channel Temperature	T_{ch}		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA, V_{GS}=0$	1500			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=1200V, V_{GS}=0$			100	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0$			± 100	nA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	1.5		3.5	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=20V, I_D=1A$	1.0	1.5		S
Static Drain-to-Source ON-State Resistance	$R_{DS(on)}$	$I_D=1A, V_{GS}=10V$		8.0	11.0	Ω

(Note) Be careful in handling the 2SK1413 because it has no protection diode between gate and source.

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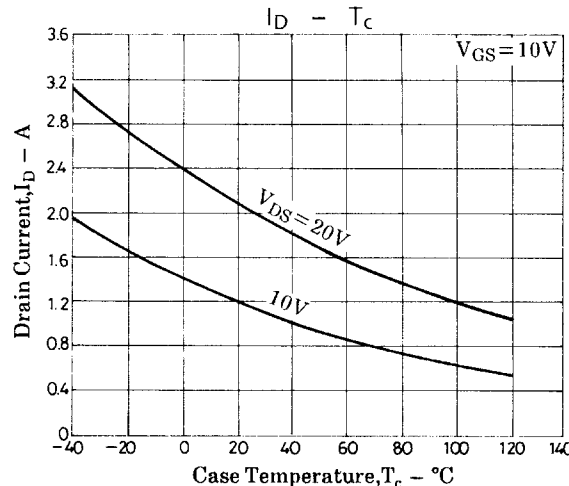
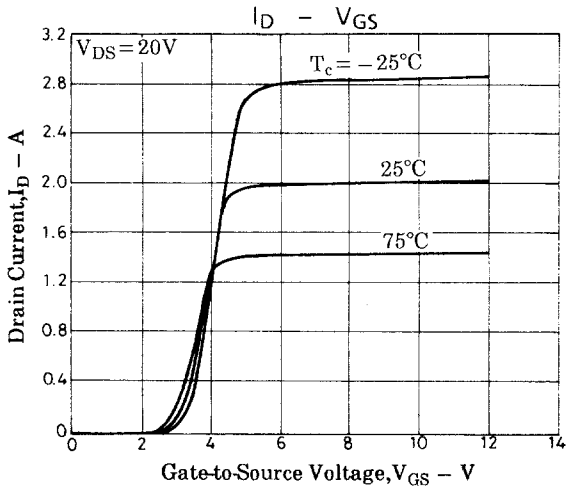
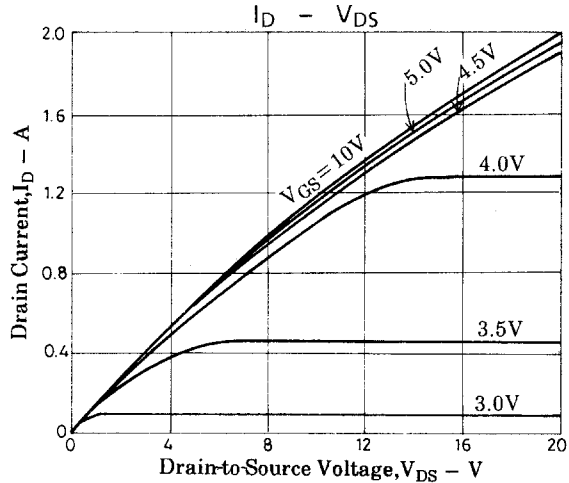
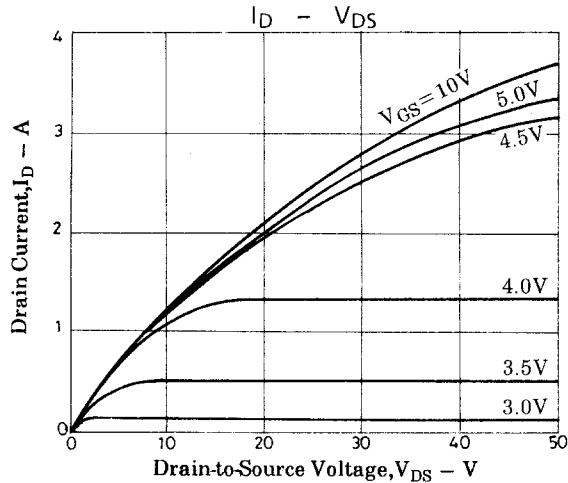
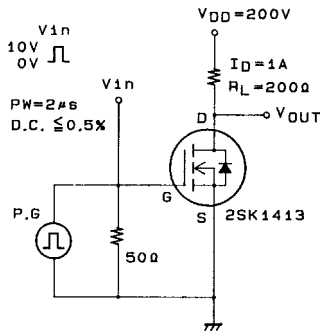
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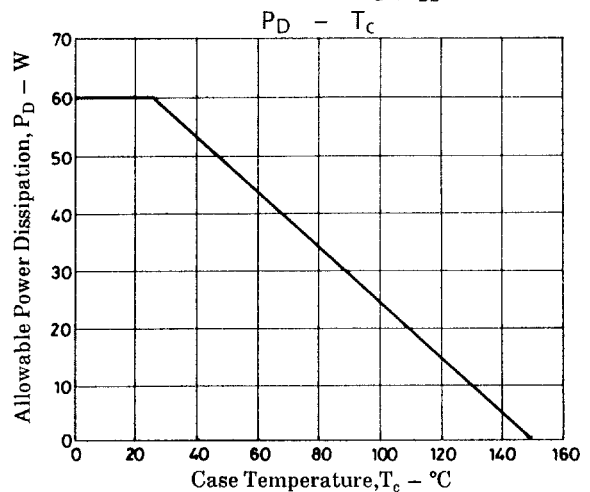
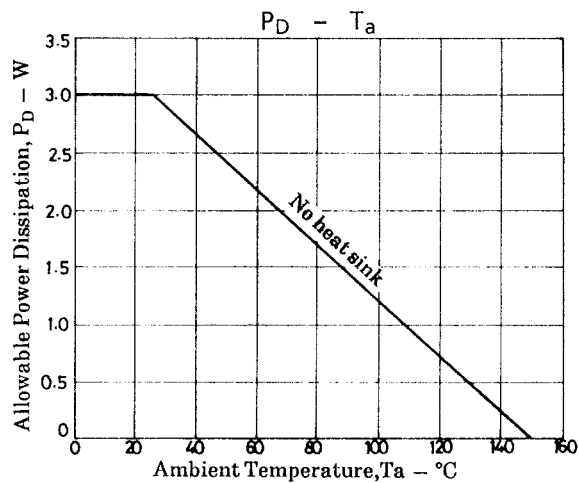
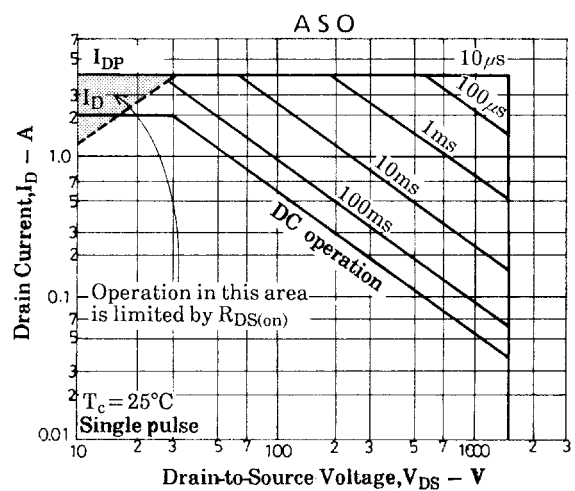
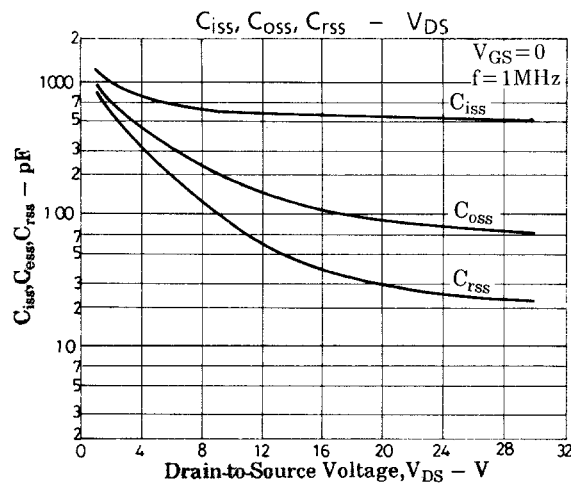
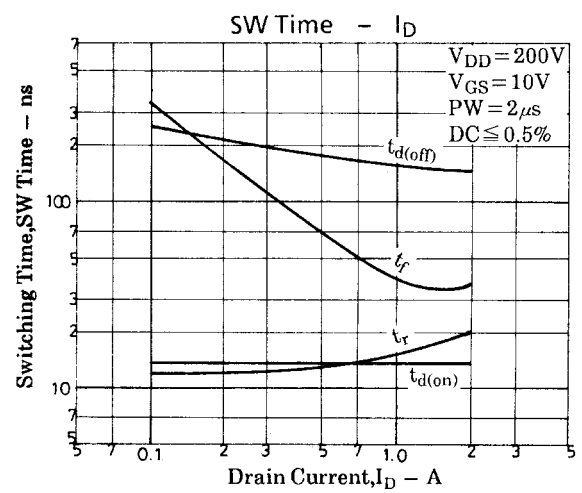
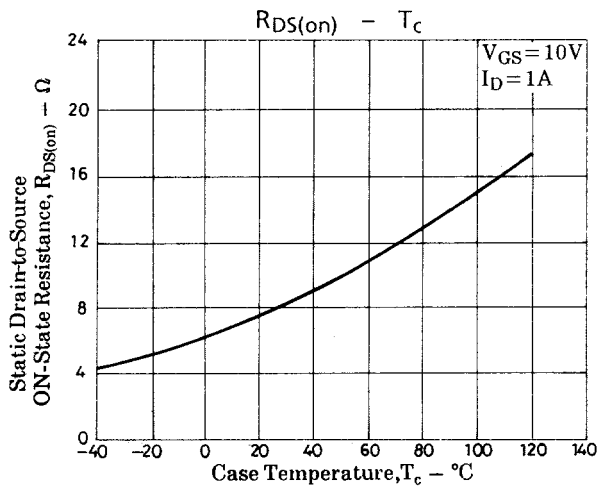
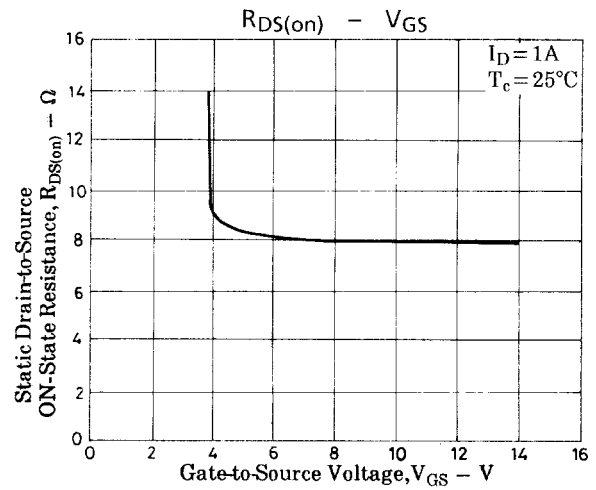
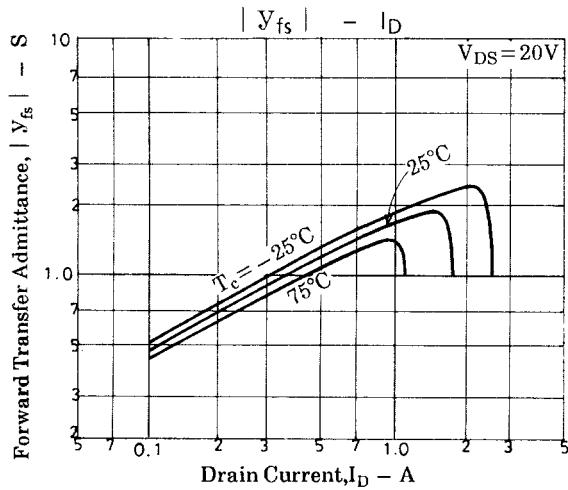
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	$V_{DS}=20V, f=1MHz$		550		pF
Output Capacitance	Coss	$V_{DS}=20V, f=1MHz$		90		pF
Reverse Transfer Capacitance	Crss	$V_{DS}=20V, f=1MHz$		30		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		14		ns
Rise Time	t_r	See specified Test Circuit		16		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		160		ns
Fall Time	t_f	See specified Test Circuit		40		ns
Diode Forward Voltage	V_{SD}	$I_S=2A, V_{GS}=0$		1.0	1.5	V

Switching Time Test Circuit





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