



# 2SK2406

## Ultrahigh-Speed Switching, Motor Driver Applications

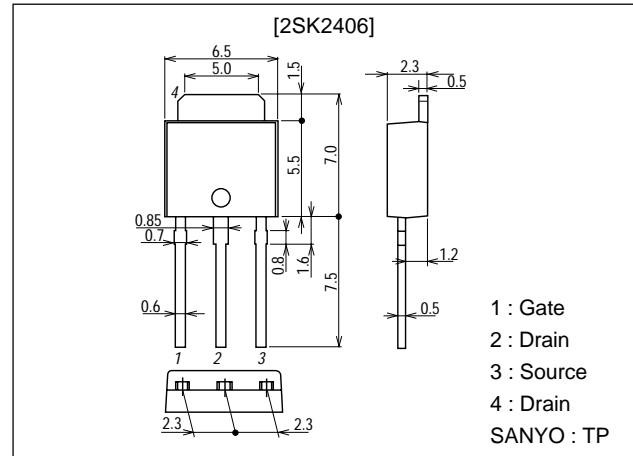
### Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- High-speed diode.

### Package Dimensions

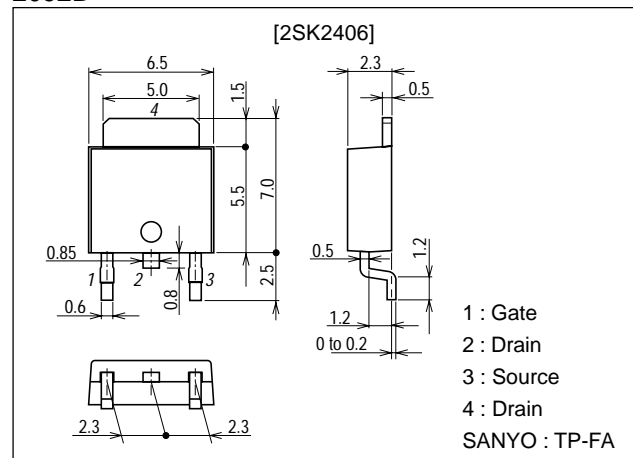
unit:mm

2083B



unit:mm

2092B



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## Specifications

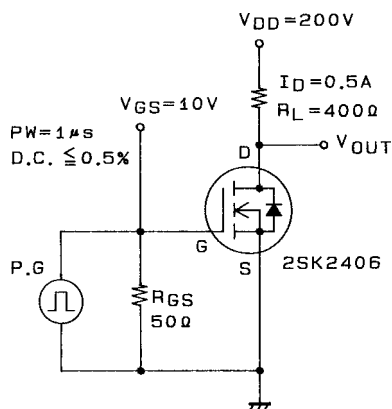
### Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		450	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 30$	V
Drain Current (DC)	$I_D$		1	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	4	A
Allowable Power Dissipation	$P_D$		1	W
		$T_c = 25^\circ\text{C}$	30	W
Channel Temperature	$T_{ch}$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

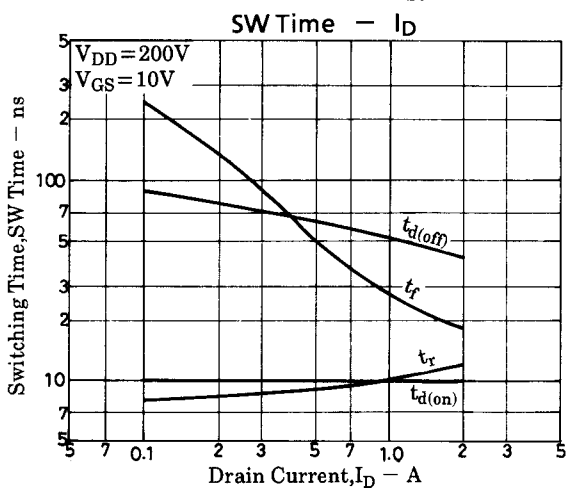
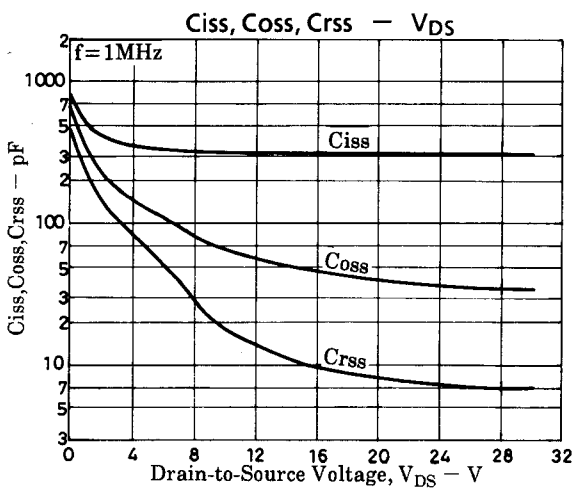
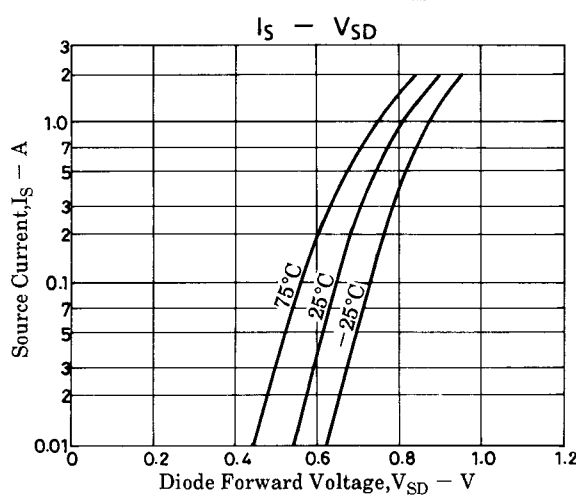
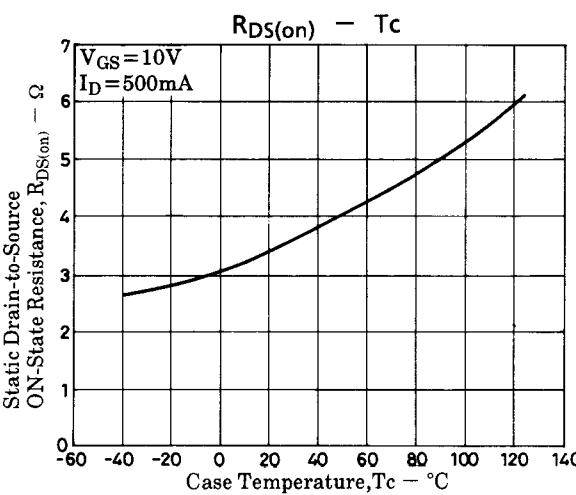
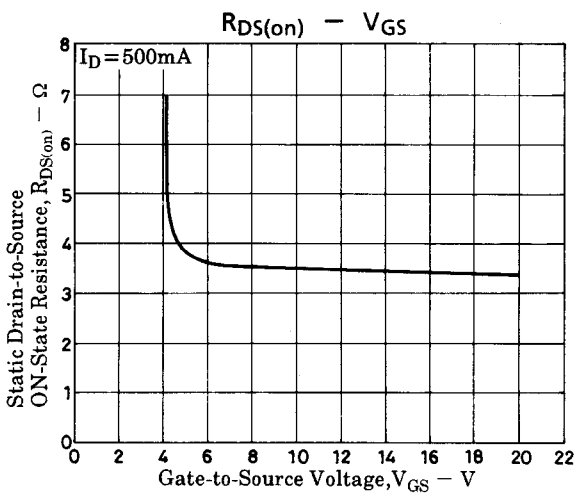
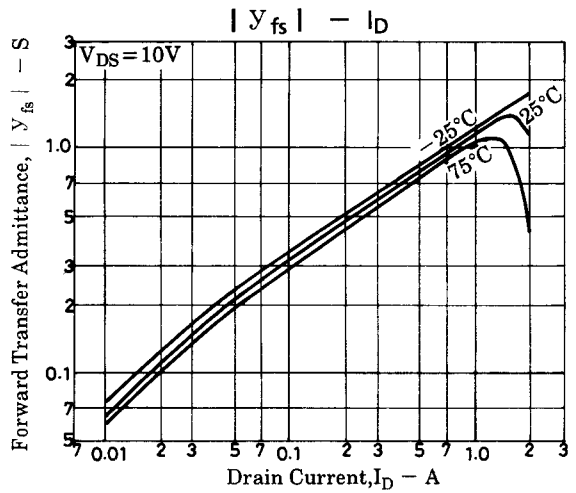
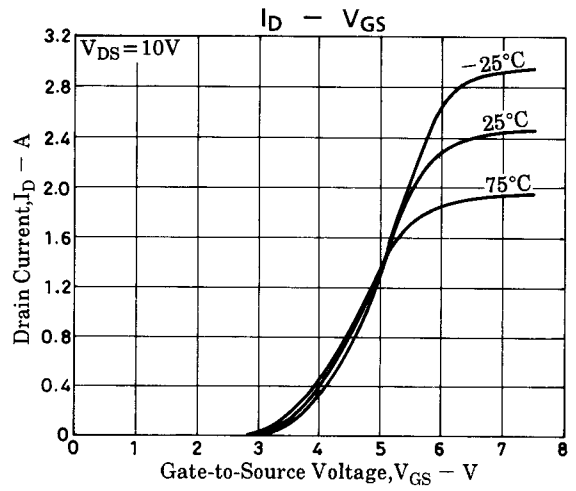
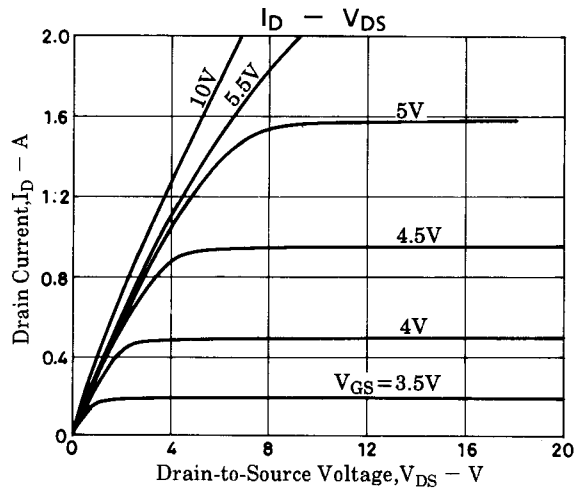
### Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 1\text{mA}$ , $V_{GS} = 0$	450			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 450\text{V}$ , $V_{GS} = 0$			1	mA
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 30\text{V}$ , $V_{DS} = 0$			$\pm 100$	nA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = 10\text{V}$ , $I_D = 1\text{mA}$	2.0		3.0	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = 10\text{V}$ , $I_D = 0.5\text{A}$	0.4	0.8		S
Static Drain-to-Source ON-State Resistance	$R_{DS(on)}$	$I_D = 0.5\text{A}$ , $V_{GS} = 10\text{V}$		3.5	4.5	$\Omega$
Input Capacitance	$C_{iss}$	$V_{DS} = 20\text{V}$ , $f = 1\text{MHz}$		300		pF
Output Capacitance	$C_{oss}$	$V_{DS} = 20\text{V}$ , $f = 1\text{MHz}$		40		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS} = 20\text{V}$ , $f = 1\text{MHz}$		8		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		10		ns
Rise Time	$t_r$	See specified Test Circuit		9		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		60		ns
Fall Time	$t_f$	See specified Test Circuit		50		ns
Diode Forward Voltage	$V_{SD}$	$I_S = 1\text{A}$ , $V_{GS} = 0$		0.8	1.2	V
Diode Reverse Time	$t_{rr}$	$I_S = 1\text{A}$ , $di/dt = 100\text{A}/\mu\text{s}$		80	120	ns

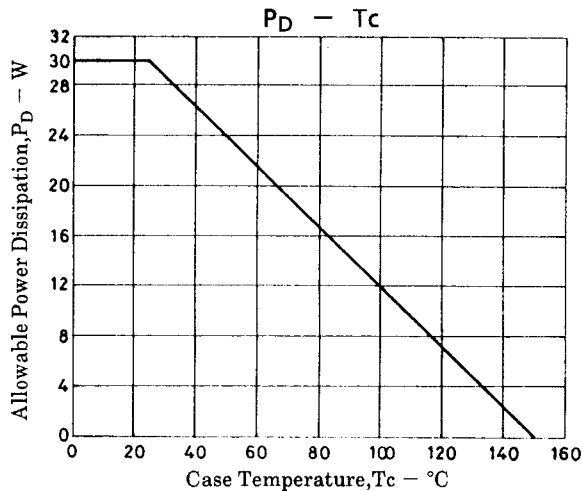
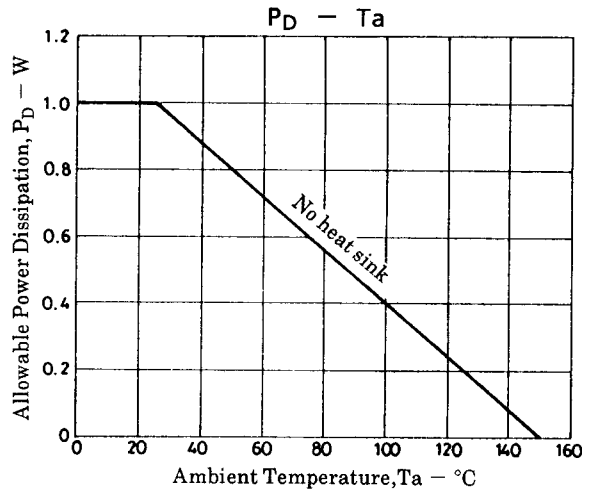
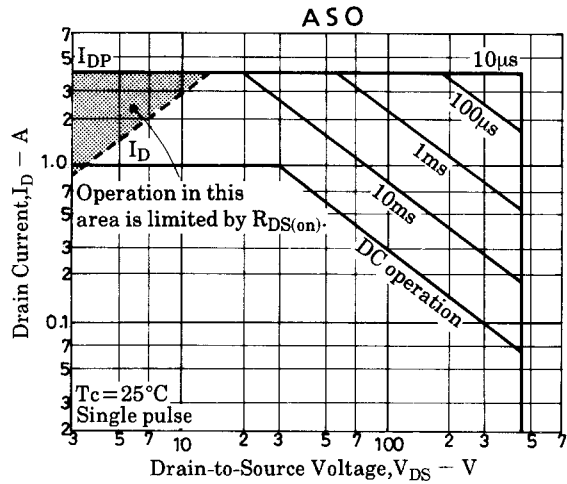
### Switching Time Test Circuit



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