



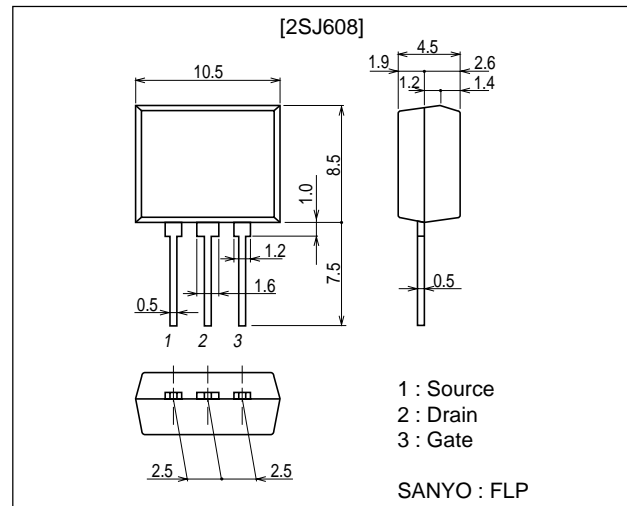
## Ultrahigh Speed Switching Applications

### Features

- Low ON-resistance.
- Ultrahigh speed switching.
- Low-voltage drive.
- Mounting height 9.5mm.
- Meets radial taping.

### Package Dimensions

unit : mm  
2085A



### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		-30	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 20$	V
Drain Current (DC)	$I_D$		-4	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	-16	A
Allowable Power Dissipation	$P_D$		1.4	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	$V_{(BR)DSS}$	$I_D = -1\text{mA}$ , $V_{GS} = 0$	-30			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -30\text{V}$ , $V_{GS} = 0$			-1	$\mu\text{A}$
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} $	$V_{DS} = -10\text{V}$ , $I_D = -2\text{A}$	2.9	4.2		S

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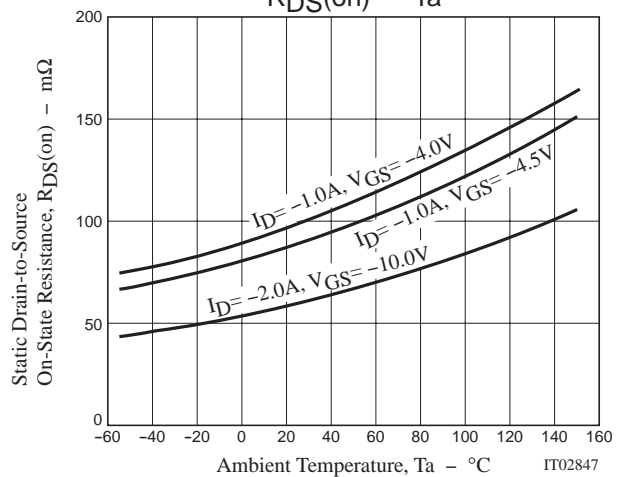
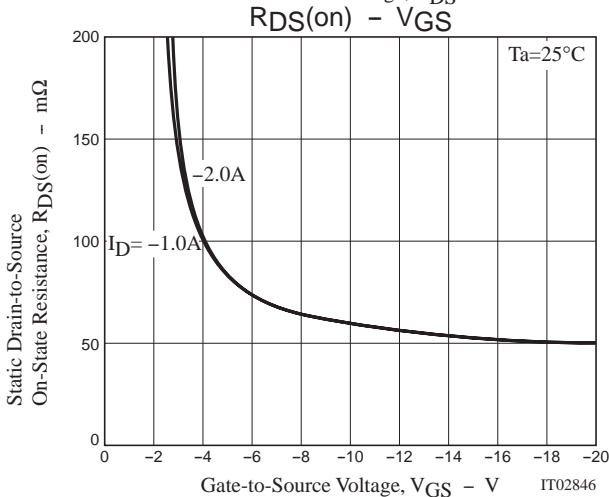
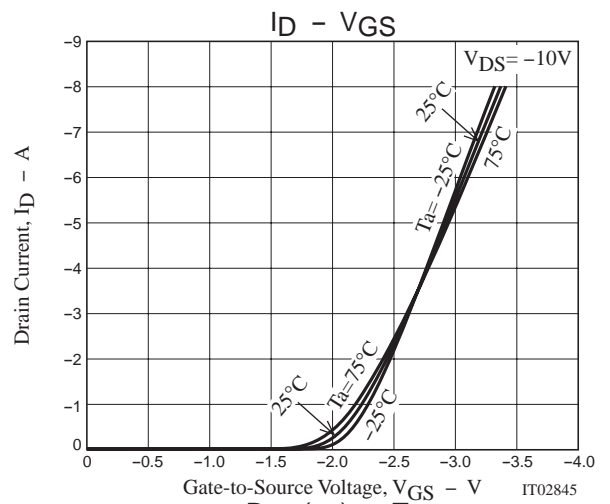
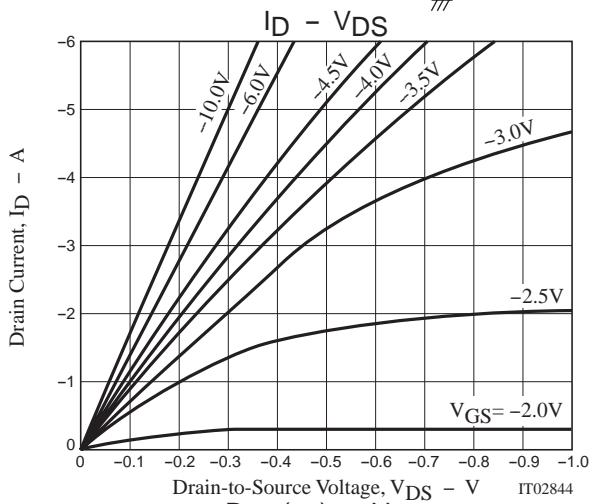
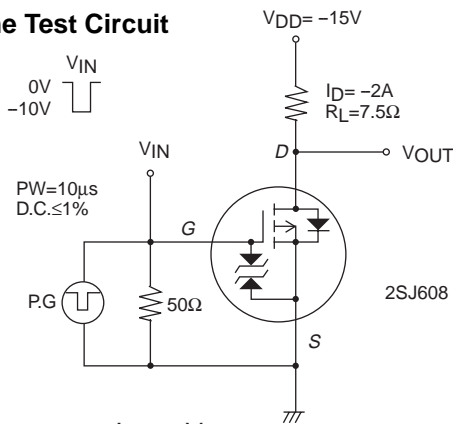
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	R <sub>DS(on) 1</sub>	I <sub>D</sub> =-2A, V <sub>GS</sub> =-10V		60	78	mΩ
	R <sub>DS(on) 2</sub>	I <sub>D</sub> =-1A, V <sub>GS</sub> =-4.5V		90	126	mΩ
	R <sub>DS(on) 3</sub>	I <sub>D</sub> =-1A, V <sub>GS</sub> =-4V		100	140	mΩ
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-10V, f=1MHz		560		pF
Output Capacitance	C <sub>oss</sub>	V <sub>DS</sub> =-10V, f=1MHz		150		pF
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>DS</sub> =-10V, f=1MHz		95		pF
Turn-ON Delay Time	t <sub>d(on)</sub>	See specified Test Circuit		9		ns
Rise Time	t <sub>r</sub>	See specified Test Circuit		4		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>	See specified Test Circuit		70		ns
Fall Time	t <sub>f</sub>	See specified Test Circuit		55		ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =-10V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-4A		12		nC
Gate-to-Source Charge	Q <sub>gs</sub>	V <sub>DS</sub> =-10V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-4A		2		nC
Gate-to-Drain "Miller" Charge	Q <sub>gd</sub>	V <sub>DS</sub> =-10V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-4A		2		nC
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =-4A, V <sub>GS</sub> =0		-0.88	-1.5	V

## Switching Time Test Circuit



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