

**FSS131**

## Load Switching Applications

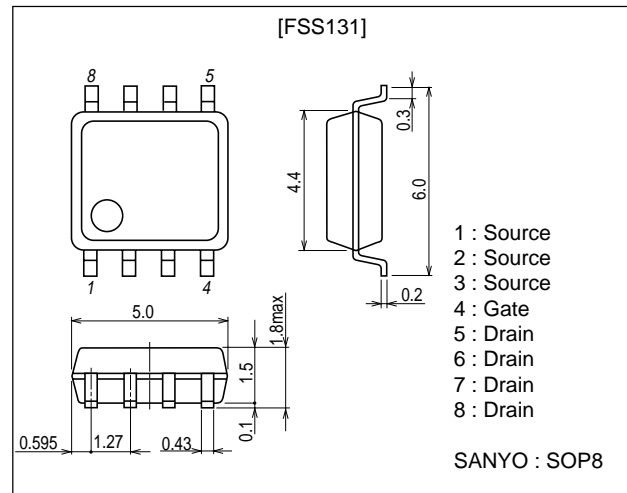
### Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 2.5V drive.

### Package Dimensions

unit : mm

2116



### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DS}$		-20	V
Gate-to-Source Voltage	$V_{GS}$		$\pm 10$	V
Drain Current (DC)	$I_D$		-6	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	-48	A
Allowable Power Dissipation	$P_D$	Mounted on a ceramic board (1200mm $\times$ 0.8mm)	1.8	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	$V_{(BR)DSS}$	$I_D = -1\text{mA}$ , $V_{GS} = 0$	-20			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -20\text{V}$ , $V_{GS} = 0$			-1	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 8\text{V}$ , $V_{DS} = 0$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -10\text{V}$ , $I_D = -1\text{mA}$	-0.4		-1.4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -10\text{V}$ , $I_D = -6\text{A}$	10.5	15		S

Marking : S131

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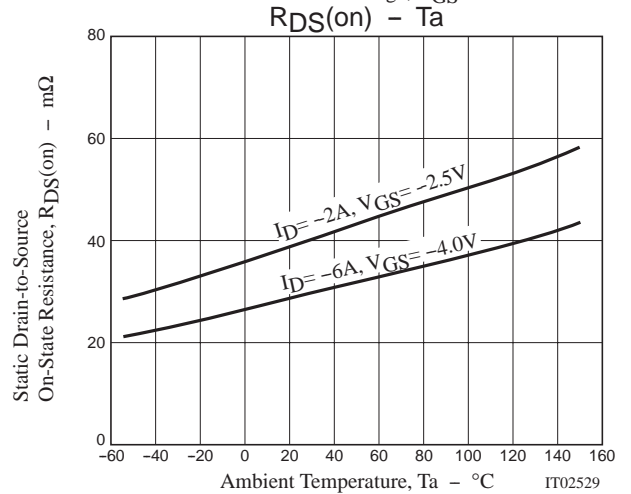
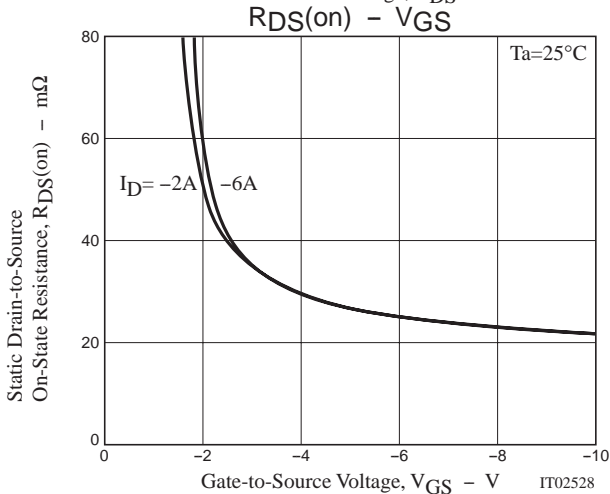
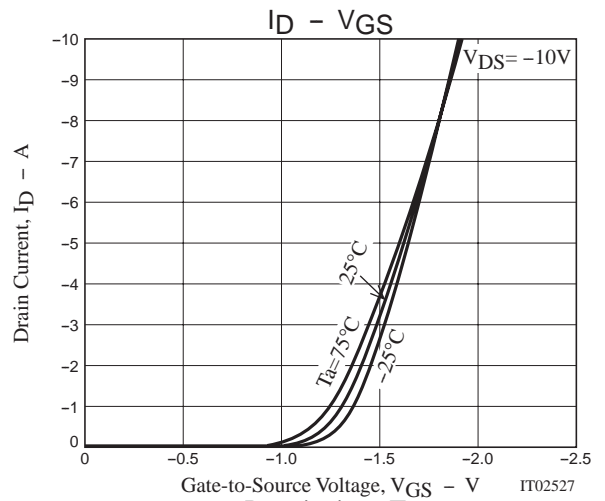
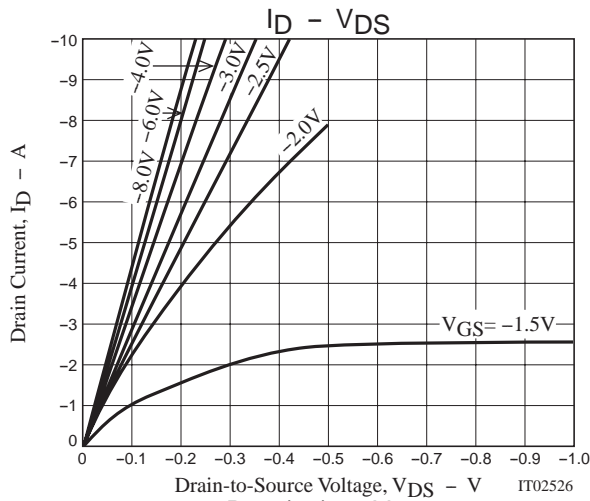
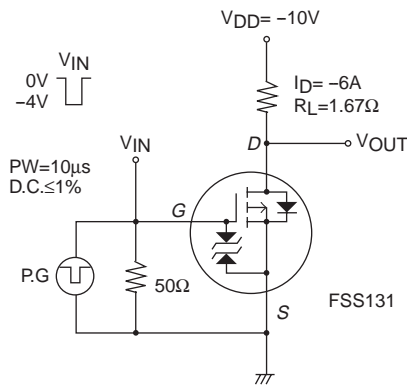
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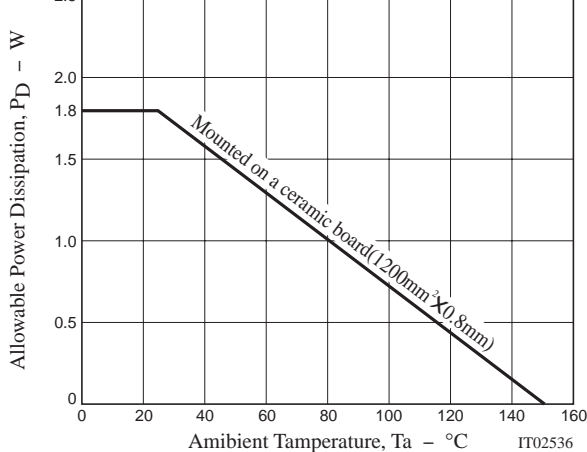
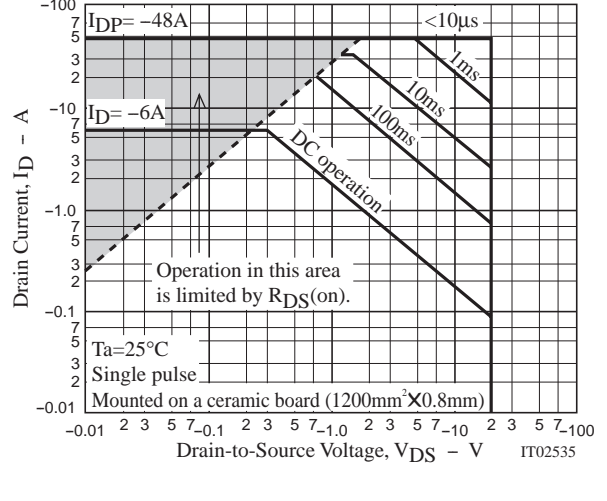
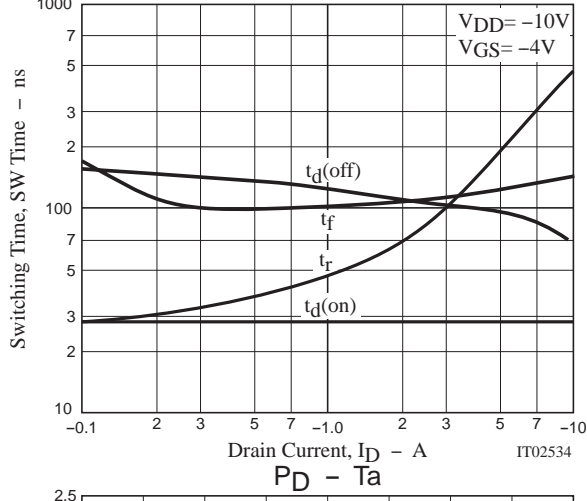
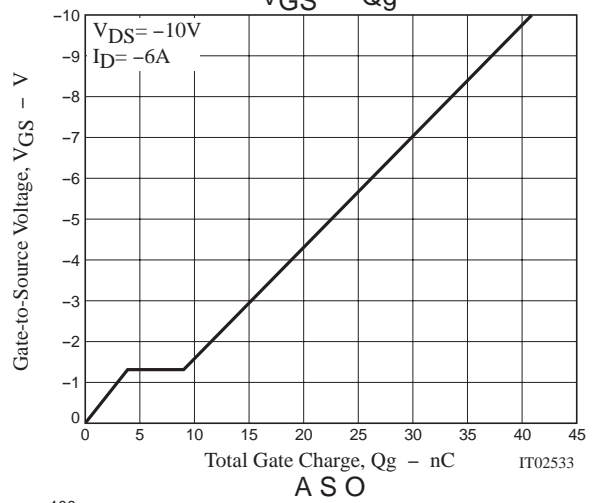
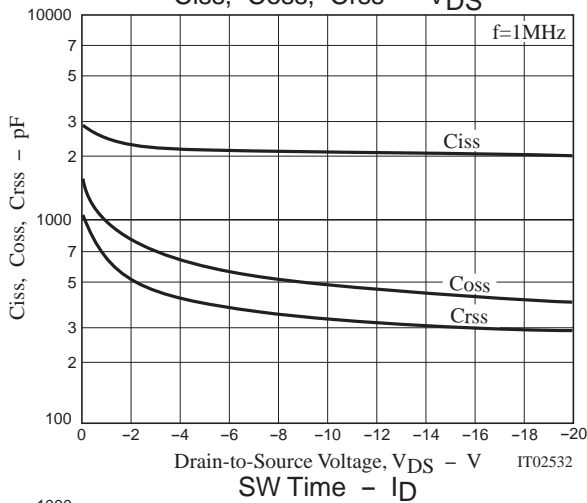
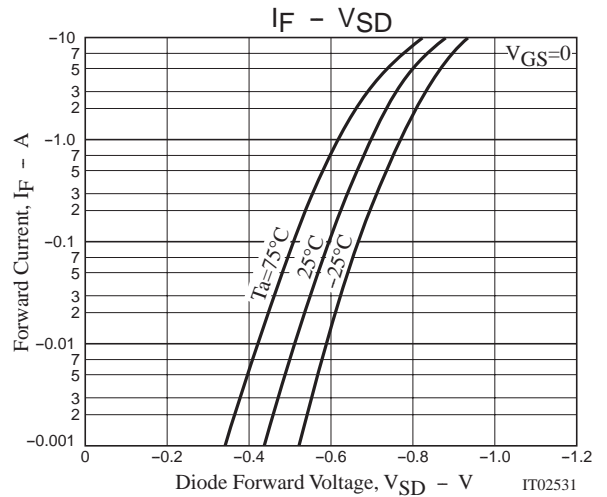
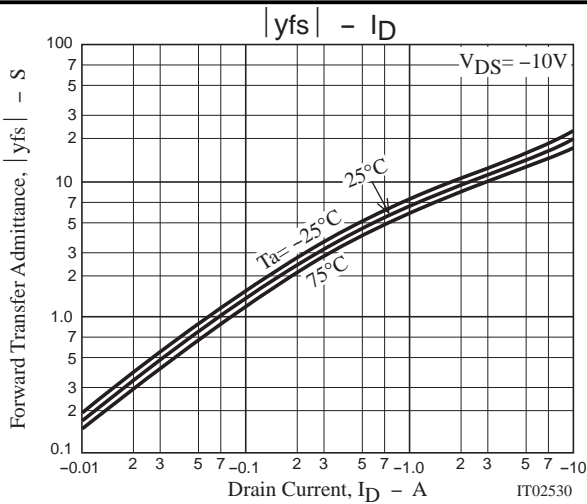
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -6A, V_{GS} = -4V$		29	38	$m\Omega$
	$R_{DS(on)2}$	$I_D = -2A, V_{GS} = -2.5V$		41	58	$m\Omega$
Input Capacitance	$C_{iss}$	$V_{DS} = -10V, f = 1MHz$		2100		$pF$
Output Capacitance	$C_{oss}$	$V_{DS} = -10V, f = 1MHz$		480		$pF$
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS} = -10V, f = 1MHz$		320		$pF$
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit		28		ns
Rise Time	$t_r$	See specified Test Circuit		240		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit		93		ns
Fall Time	$t_f$	See specified Test Circuit		130		ns
Total Gate Charge	$Q_g$	$V_{DS} = -10V, V_{GS} = -10V, I_D = -6A$		41		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS} = -10V, V_{GS} = -10V, I_D = -6A$		4		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS} = -10V, V_{GS} = -10V, I_D = -6A$		5		nC
Diode Forward Voltage	$V_{SD}$	$I_S = -6A, V_{GS} = 0$		-0.82	-1.5	V

## Switching Time Test Circuit



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