Ordering number : ENN6786

P-Channel Silicon MOSFET

FSS131

Load Switching Applications

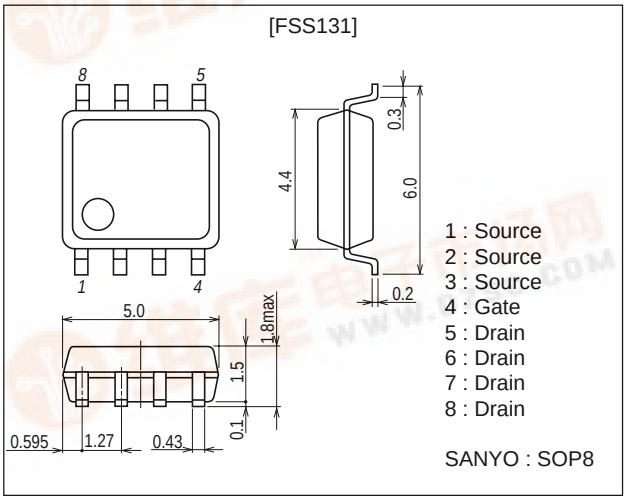
Features

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

Package Dimensions

unit : mm

2116



Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		-20	V
Gate-to-Source Voltage	V_{GSS}		±10	V
Drain Current (DC)	I_D		-6	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	-48	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (1200mm²×0.8mm)	1.8	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-55 to +150	°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	-20			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V, V_{GS}=0			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0			±10	μA
Cutoff Voltage	$V_{GS(off)}$	V_{DS}=-10V, I_D=-1mA	-0.4		-1.4	V
Forward Transfer Admittance	|yfs|	V_{DS}=-10V, I_D=-6A	10.5	15		S

Marking : S131

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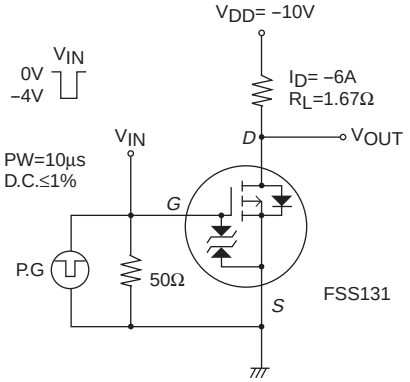
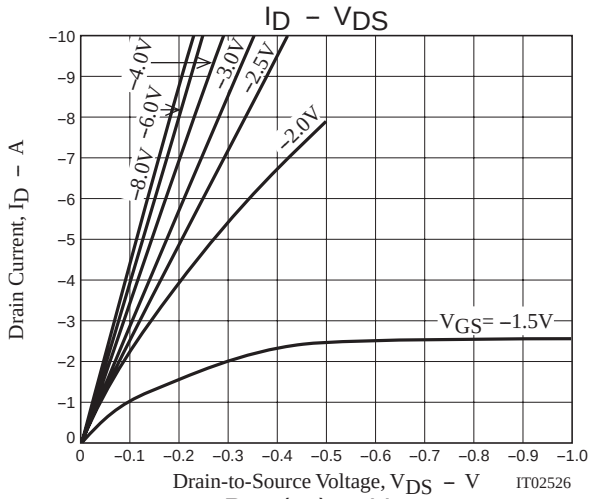
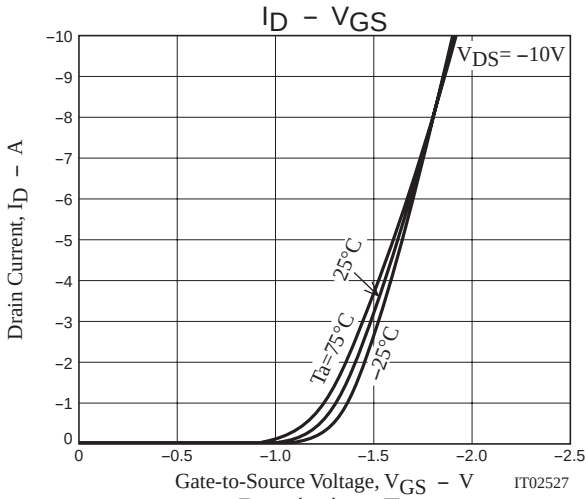
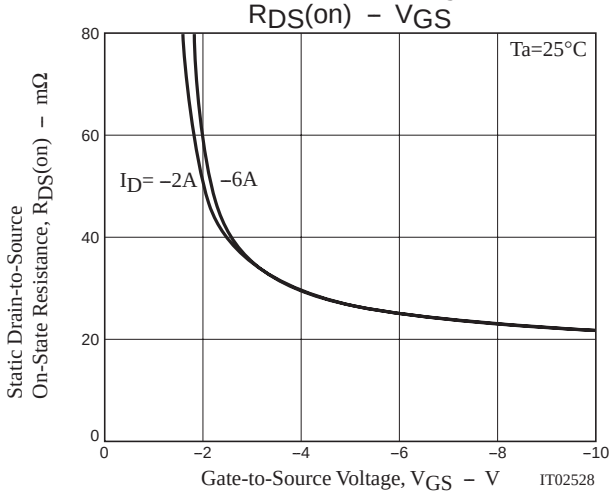
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=–6A, V_{GS}=–4V		29	38	mΩ
	$R_{DS}(on)2$	I_D=–2A, V_{GS}=–2.5V		41	58	mΩ
Input Capacitance	Ciss	V_{DS}=–10V, f=1MHz		2100		pF
Output Capacitance	Coss	V_{DS}=–10V, f=1MHz		480		pF
Reverse Transfer Capacitance	Crss	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	Qg	V_{DS}=–10V, V_{GS}=–10V, I_D=–6A		41		nC
Gate-to-Source Charge	Qgs	V_{DS}=–10V, V_{GS}=–10V, I_D=–6A		4		nC
Gate-to-Drain “Miller” Charge	Qgd	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

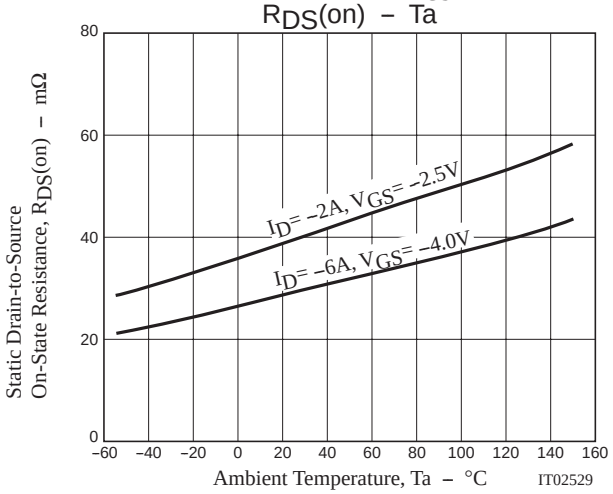
Switching Time Test Circuit

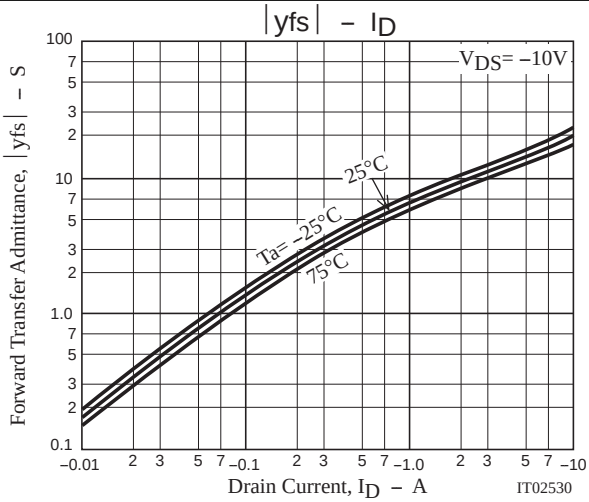


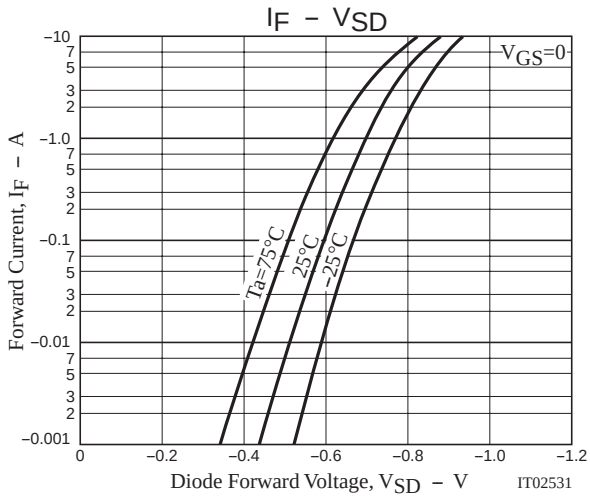


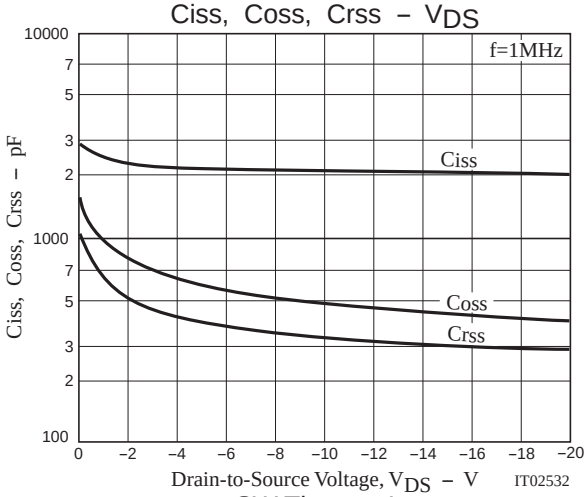


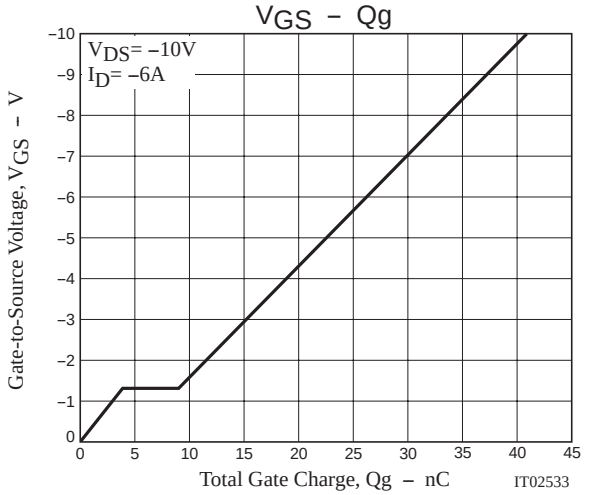


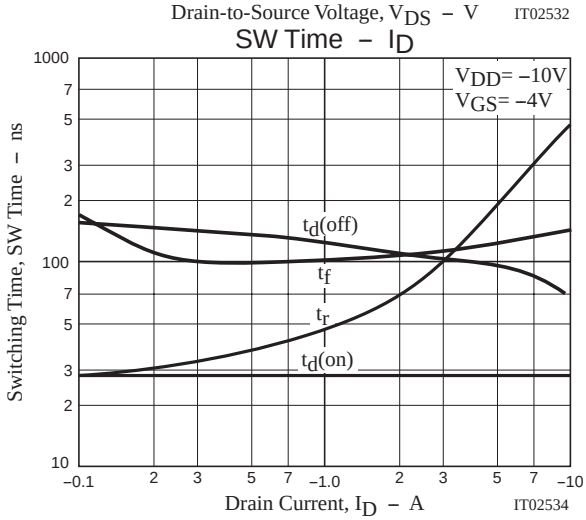


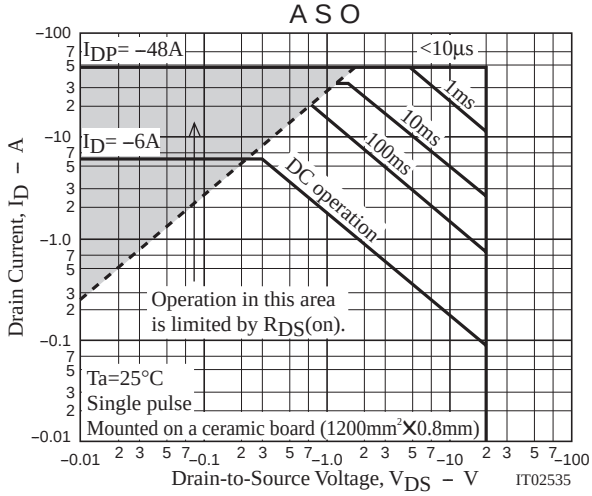

|yfs| – ID
VDS= –10V
25°C
Ta= –25°C
75°C
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT02530

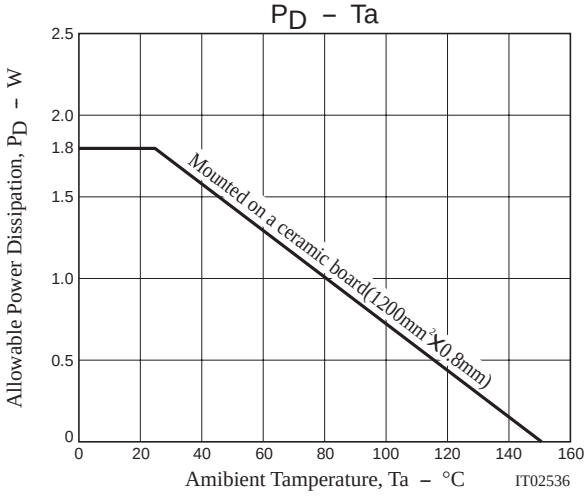

IF – VSD
VGS=0
Ta=75°C
25°C
–25°C
Forward Current, IF – A
Diode Forward Voltage, VSD – V
IT02531


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT02532


VGS – Qg
VDS= –10V
ID= –6A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT02533


SW Time – ID
VDD= –10V
VGS= –4V
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT02534


A S O
IDP= –48A
<10µs
1ms
10ms
100ms
DC operation
ID= –6A
Operation in this area
is limited by RDS(on).
Ta=25°C
Single pulse
Mounted on a ceramic board (1200mm²X0.8mm)
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT02535


PD – Ta
Mounted on a ceramic board(1200mm²X0.8mm)
Allowable Power Dissipation, PD – W
Amibient Tamperature, Ta – °C
IT02536