Ordering number : ENA1797

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

N-Channel Silicon MOSFET

BFL4026 — General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS}(on)$=2.8Ω (typ.)
- Input capacitance Ciss=650pF (typ.)
- 10V drive

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		900	V
Gate-to-Source Voltage	V_{GSS}		±30	V
Drain Current (DC)	I_{Dc}*1	Limited only by maximum temperature Tch=150°C	5	A
	I_{Dpack}*2	Tc=25°C (SANYO's ideal heat dissipation condition)*3	3.5	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	10	A
Allowable Power Dissipation	P_D		2.0	W
		Tc=25°C (SANYO's ideal heat dissipation condition)*3	35	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C
Avalanche Energy (Single Pulse) *4	E_{AS}		140	mJ
Avalanche Current *5	I_{AV}		5	A

Note :*1 Shows chip capability

*2 Package limited

*3 SANYO's condition is radiation from backside.

The method is applying silicone grease to the backside of the device and attaching the device to water-cooled radiator made of aluminium.

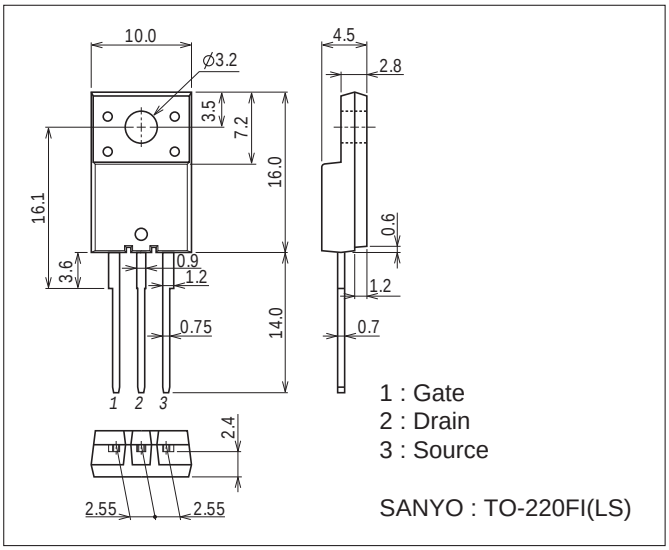
*4 V_{DD}=99V, L=10mH, I_{AV}=5A (Fig.1)

*5 L≤10mH, single pulse

Package Dimensions

unit : mm (typ)

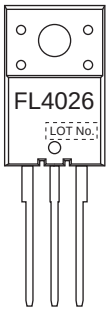
7509-002



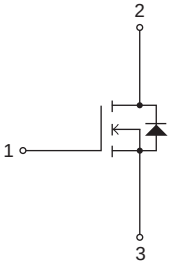
Product & Package Information

- Package : TO-220FI(LS)
- JEITA, JEDEC : SC-67, SOT-186A, TO-220F
- Minimum Packing Quantity : 100 pcs./bag or 50pcs./magazine

Marking



Electrical Connection



Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=10mA, V_{GS}=0V	900			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=720V, V_{GS}=0V			1.0	mA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±30V, V_{DS}=0V			±100	nA
Cutoff Voltage	V_{GS}(off)	V_{DS}=10V, I_D=1mA	2.0		4.0	V
Forward Transfer Admittance	| yfs |	V_{DS}=20V, I_D=2.5A	1.4	2.8		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)	I_D=2.5A, V_{GS}=10V		2.8	3.6	Ω
Input Capacitance	Ciss	V_{DS}=30V, f=1MHz		650		pF
Output Capacitance	Coss	V_{DS}=30V, f=1MHz		100		pF
Reverse Transfer Capacitance	Crss	V_{DS}=30V, f=1MHz		35		pF
Turn-ON Delay Time	t_d(on)	See Fig.2		14		ns
Rise Time	t_r	See Fig.2		37		ns
Turn-OFF Delay Time	t_d(off)	See Fig.2		117		ns
Fall Time	t_f	See Fig.2		39		ns
Total Gate Charge	Qg	V_{DS}=200V, V_{GS}=10V, I_D=5A		33		nC
Gate-to-Source Charge	Qgs	V_{DS}=200V, V_{GS}=10V, I_D=5A		5.3		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=200V, V_{GS}=10V, I_D=5A		16.5		nC
Diode Forward Voltage	V_{SD}	I_S=5A, V_{GS}=0V		0.85	1.2	V
Reverse Recovery Time	t_{rr}	See Fig.3		720		ns
Reverse Recovery Charge	Q_{rr}	I_S=5A, V_{GS}=0V, di/dt=100A/μs		4700		nC

Fig.1 Avalanche Resistance Test Circuit

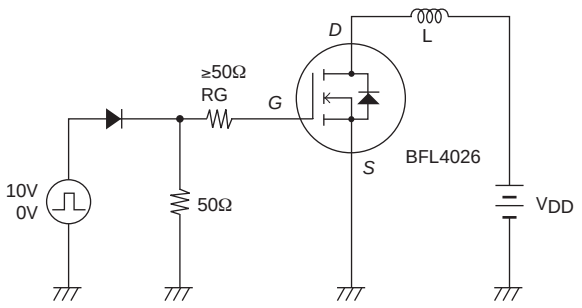


Fig.2 Switching Time Test Circuit

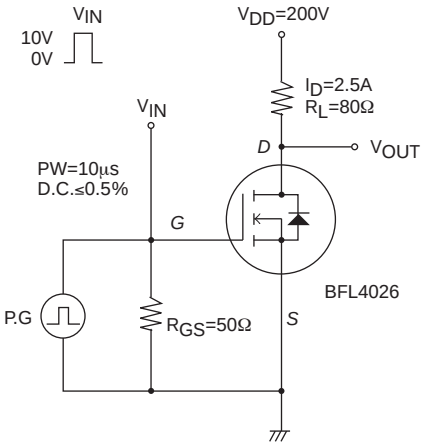
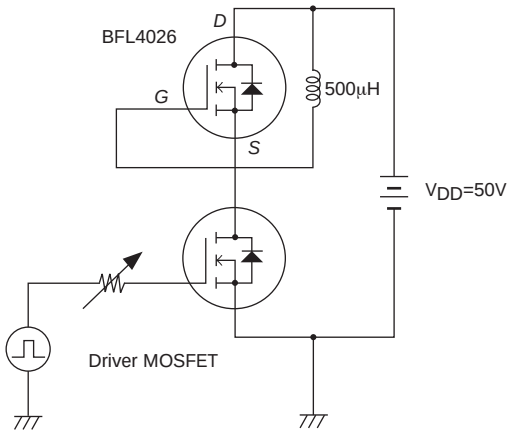
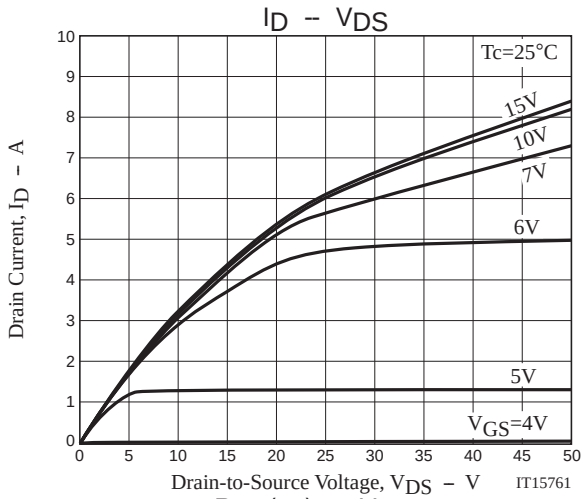
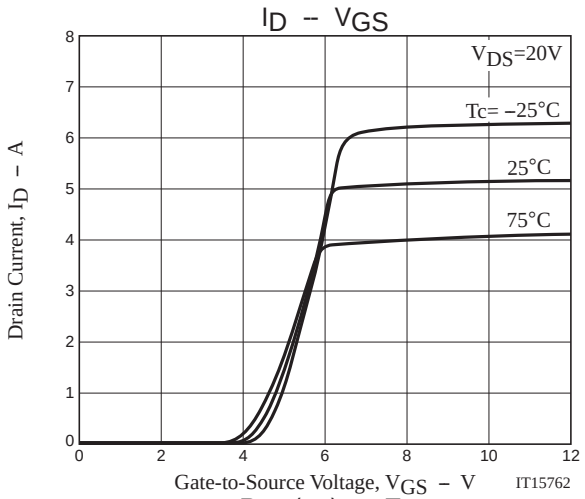
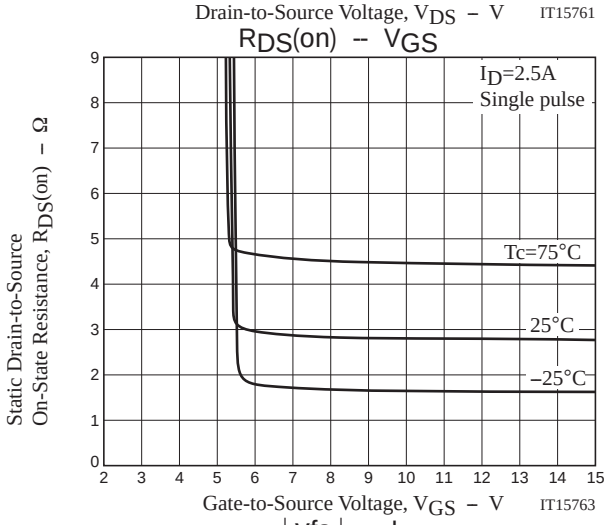


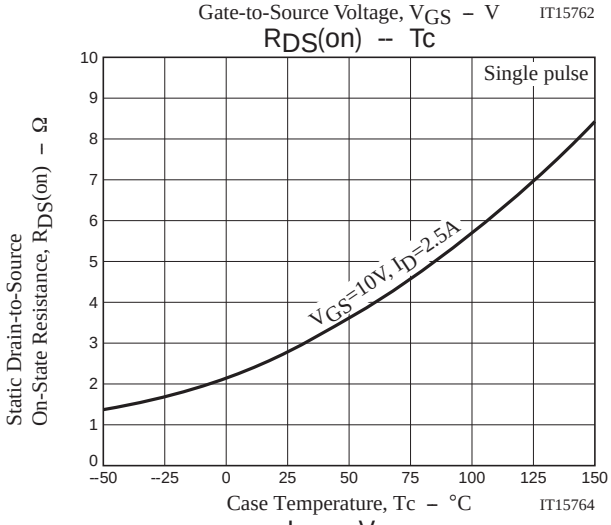
Fig.3 Reverse Recovery Time Test Circuit

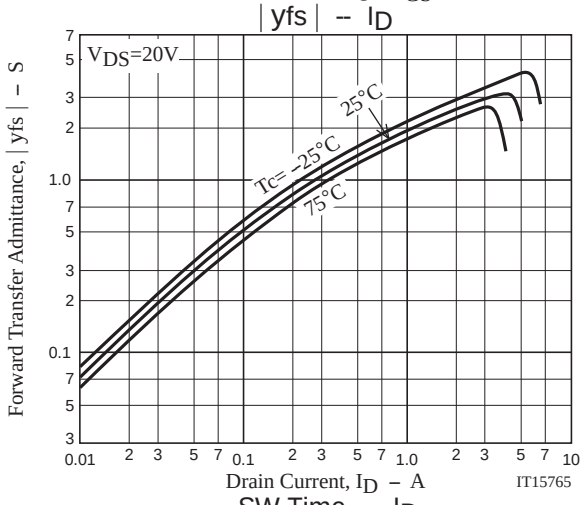


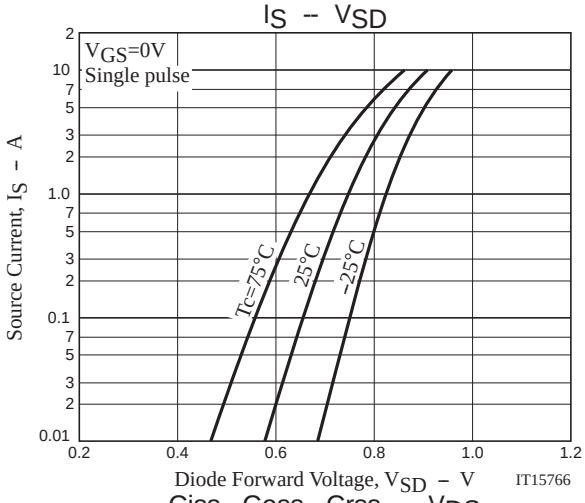

ID -- VDS
Tc=25°C
15V
10V
7V
6V
5V
VGS=4V
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT15761

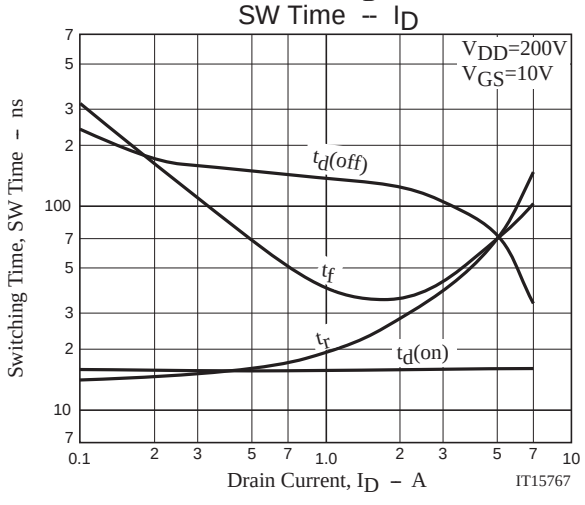

ID -- VGS
VDS=20V
Tc= –25°C
25°C
75°C
Drain Current, ID – A
Gate-to-Source Voltage, VGS – V
IT15762

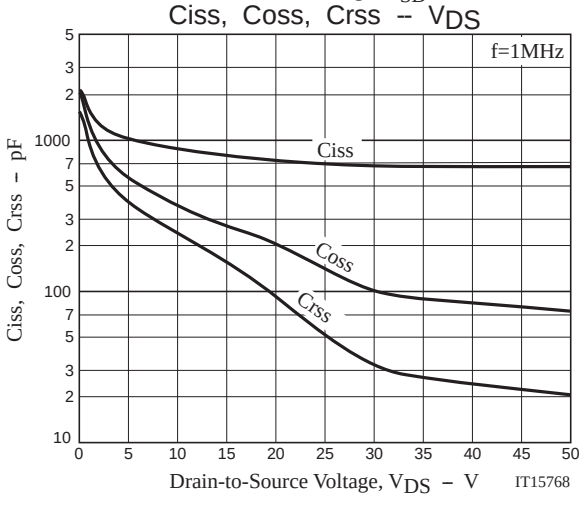

RDS(on) -- VGS
ID=2.5A
Single pulse
Tc=75°C
25°C
–25°C
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Gate-to-Source Voltage, VGS – V
IT15763

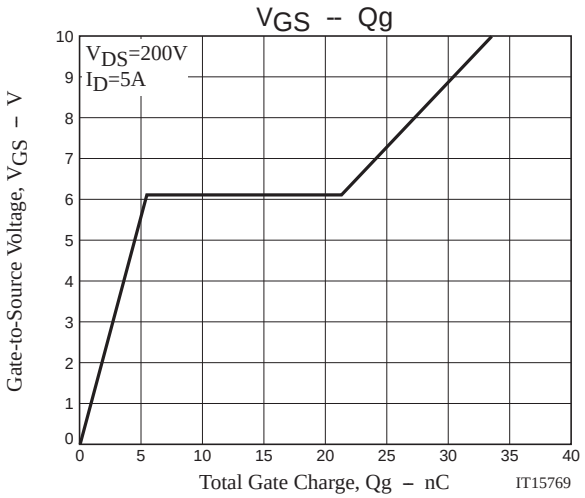

RDS(on) -- Tc
Single pulse
VGS=10V, ID=2.5A
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Case Temperature, Tc – °C
IT15764

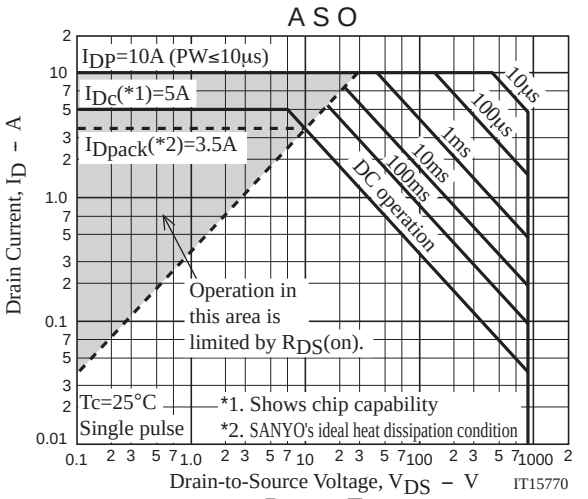

| yfs | -- ID
VDS=20V
25°C
Tc= –25°C
75°C
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – A
IT15765

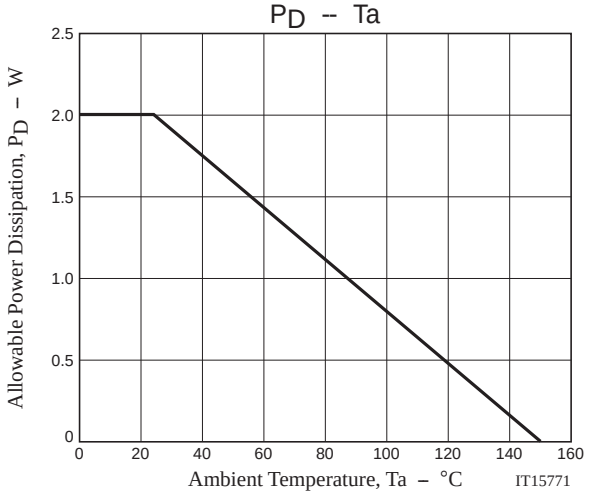

IS -- VSD
VGS=0V
Single pulse
Tc=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT15766

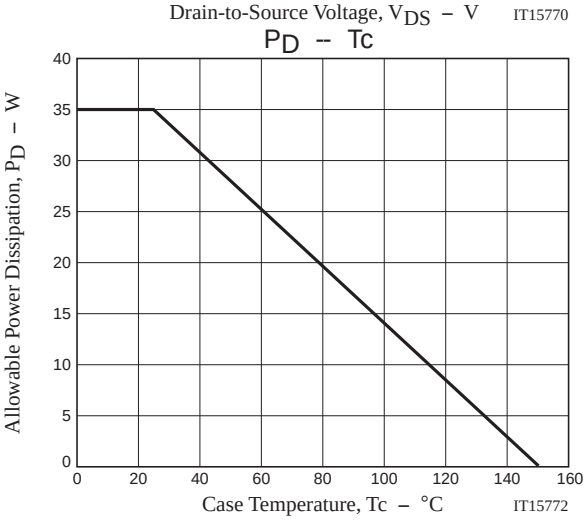

SW Time -- ID
VDD=200V
VGS=10V
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT15767

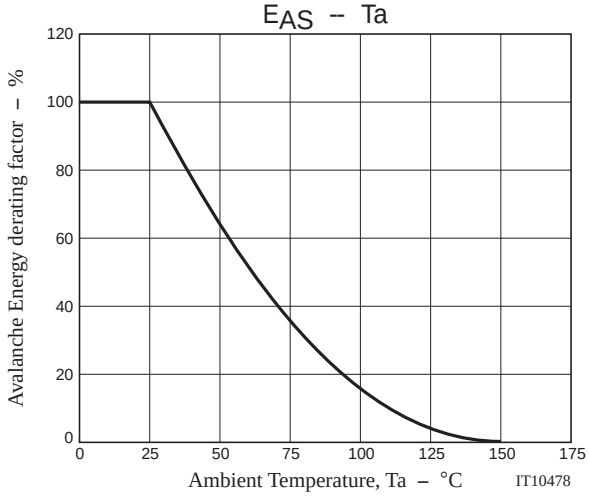

Ciss, Coss, Crss -- VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT15768


VGS – Qg
VDS=200V
ID=5A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT15769


A S O
IDP=10A (PW≤10μs)
IDC(*1)=5A
IDpack(*2)=3.5A
10μs
100μs
1ms
10ms
100ms
DC operation
Operation in this area is limited by RDS(on).
Tc=25°C
Single pulse
*1. Shows chip capability
*2. SANYO's ideal heat dissipation condition
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT15770


PD – Ta
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT15771


PD – Tc
Allowable Power Dissipation, PD – W
Case Temperature, Tc – °C
IT15772


EAS – Ta
Avalanche Energy derating factor – %
Ambient Temperature, Ta – °C
IT10478

Note on usage : Since the BFL4026 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

This catalog provides information as of July, 2010. Specifications and information herein are subject to change without notice.