



SANYO Semiconductors

## DATA SHEET

An ON Semiconductor Company

N-Channel Silicon MOSFET

# BFL4037 — General-Purpose Switching Device Applications

## Features

- ON-resistance  $R_{DS(on)}=0.33\Omega$  (typ.)
- Input capacitance  $C_{iss}=1200\text{pF}$  (typ.)
- 10V drive

## Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DS}$		500	V
Gate-to-Source Voltage	$V_{GS}$		$\pm 30$	V
Drain Current (DC)	$I_{DC}^{*1}$	Limited only by maximum temperature $T_{ch}=150^\circ\text{C}$	16	A
	$I_{Dpack}^{*2}$	$T_c=25^\circ\text{C}$ (SANYO's ideal heat dissipation condition)*3	11	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	60	A
Allowable Power Dissipation	$P_D$		2.0	W
		$T_c=25^\circ\text{C}$ (SANYO's ideal heat dissipation condition)*3	40	W
Channel Temperature	$T_{ch}$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$
Avalanche Energy (Single Pulse) *4	$E_{AS}$		159	mJ
Avalanche Current *5	$I_{AV}$		16	A

Note : \*1 Shows chip capability

\*2 Package limited

\*3 SANYO's condition is radiation from backside.

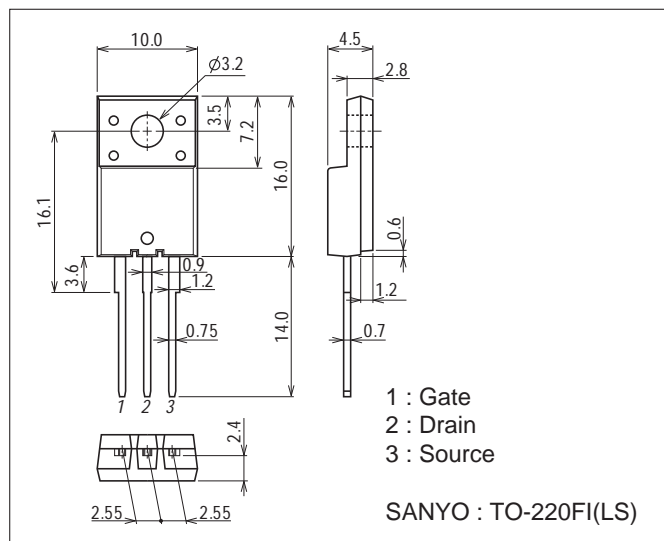
The method is applying silicone grease to the backside of the device and attaching the device to water-cooled radiator made of aluminium.

\*4  $V_{DD}=99\text{V}$ ,  $L=1\text{mH}$ ,  $I_{AV}=16\text{A}$  (Fig.1)\*5  $L \leq 1\text{mH}$ , single pulse

## Package Dimensions

unit : mm (typ)

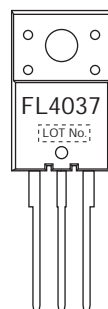
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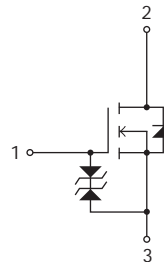
## Product & Package Information

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

## Marking



## Electrical Connection



SANYO Semiconductor Co., Ltd.

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## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=10mA, V_{GS}=0V$	500			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=400V, V_{GS}=0V$			100	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 24V, V_{DS}=0V$			$\pm 10$	$\mu A$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	3		5	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=8A$	4.5	9		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)}$	$I_D=8A, V_{GS}=10V$		0.33	0.43	$\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=30V, f=1MHz$		1200		pF
Output Capacitance	$C_{oss}$	$V_{DS}=30V, f=1MHz$		250		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=30V, f=1MHz$		55		pF
Turn-ON Delay Time	$t_{d(on)}$	See Fig.2		26.5		ns
Rise Time	$t_r$	See Fig.2		78		ns
Turn-OFF Delay Time	$t_{d(off)}$	See Fig.2		146		ns
Fall Time	$t_f$	See Fig.2		57		ns
Total Gate Charge	$Q_g$	$V_{DS}=200V, V_{GS}=10V, I_D=16A$		48.6		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=200V, V_{GS}=10V, I_D=16A$		8.2		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=200V, V_{GS}=10V, I_D=16A$		27.4		nC
Diode Forward Voltage	$V_{SD}$	$I_S=16A, V_{GS}=0V$		0.95	1.3	V
Reverse Recovery Time	$t_{rr}$	See Fig.3		600		ns
Reverse Recovery Charge	$Q_{rr}$	$I_S=16A, V_{GS}=0V, di/dt=100A/\mu s$		5000		nC

Fig.1 Avalanche Resistance Test Circuit

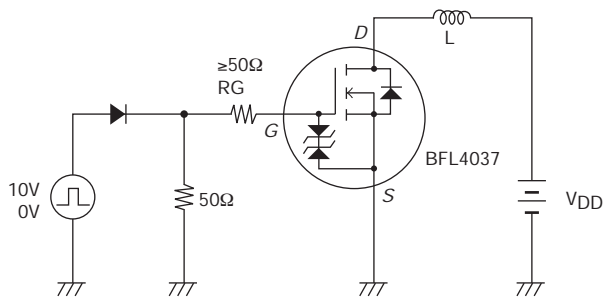


Fig.2 Switching Time Test Circuit

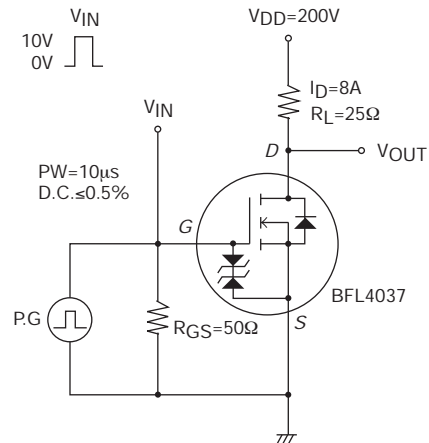
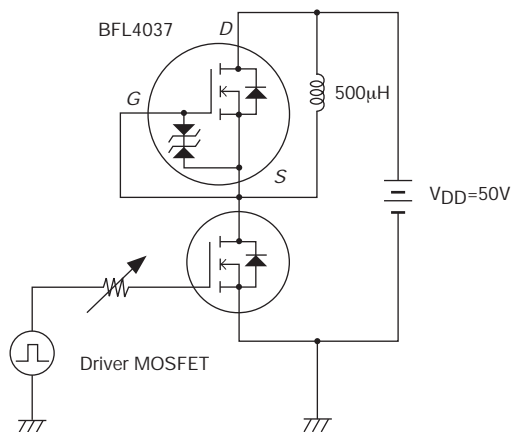
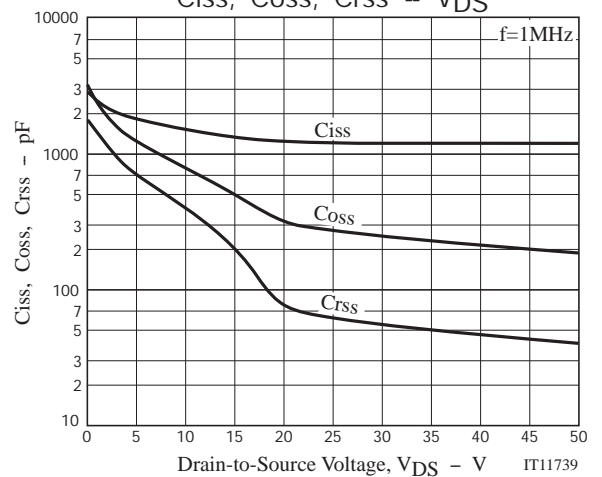
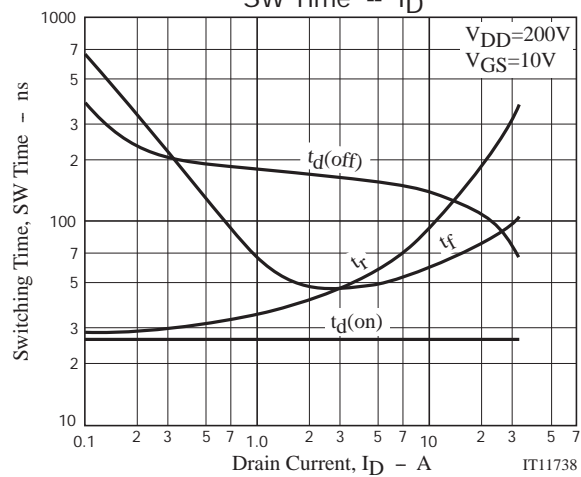
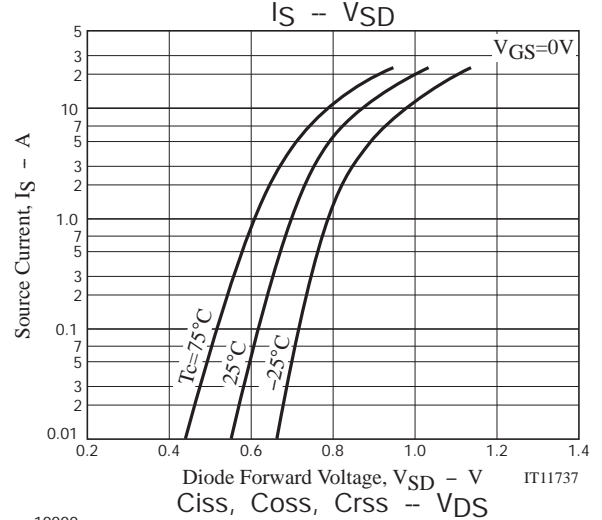
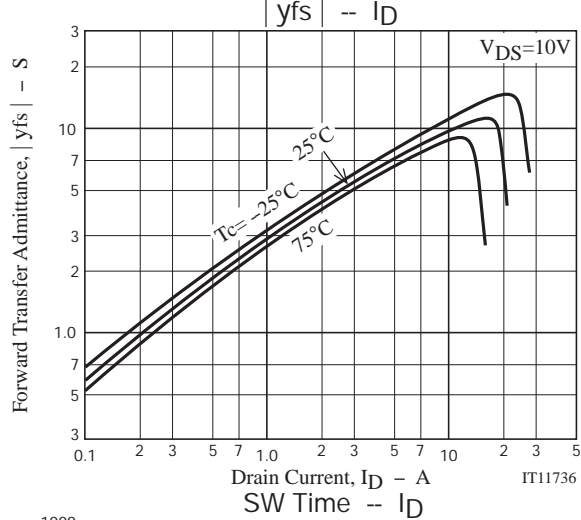
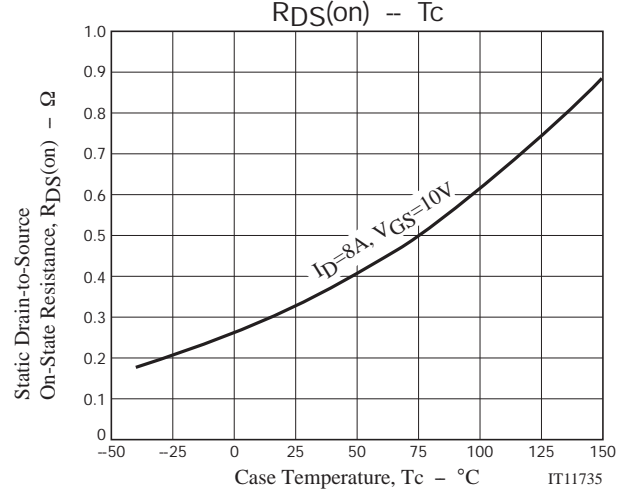
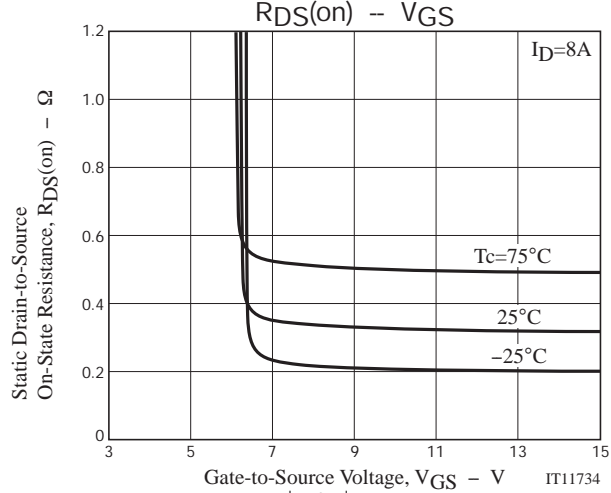
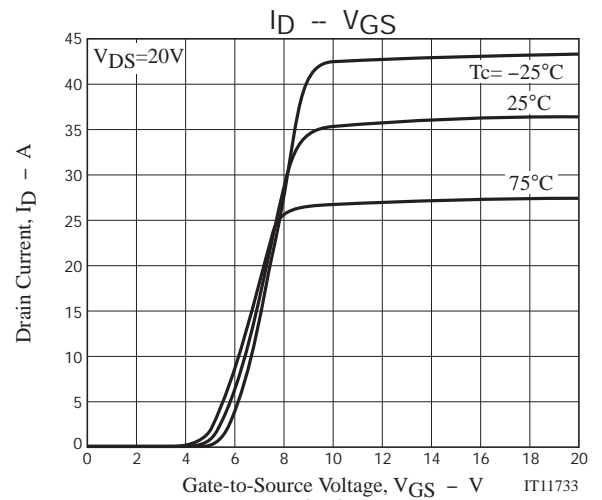
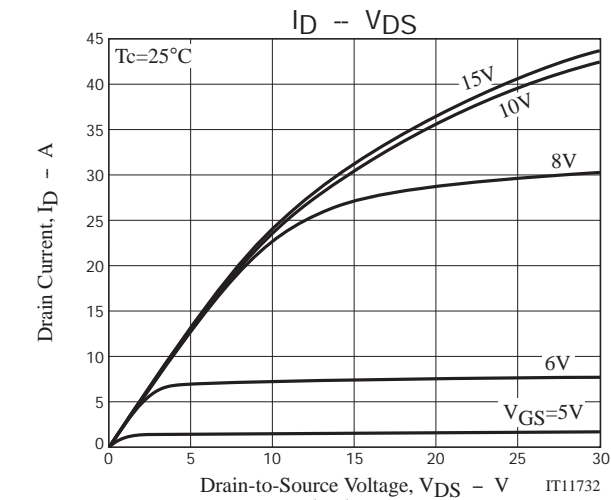
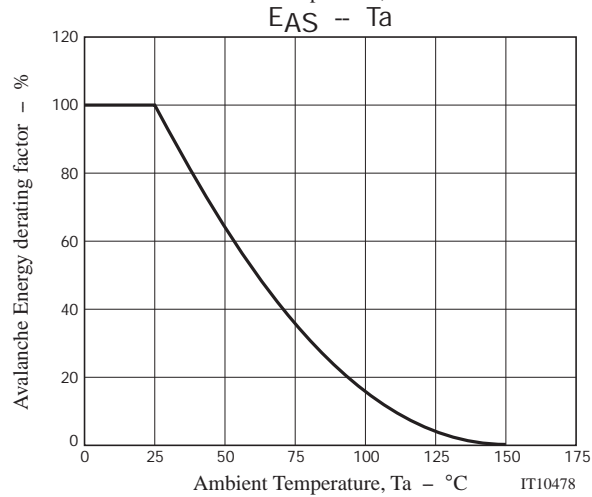
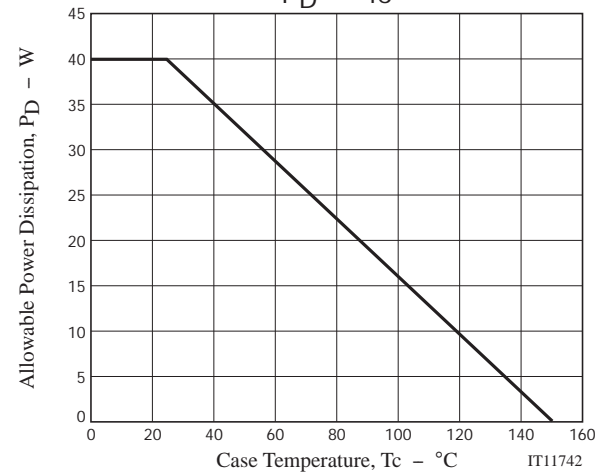
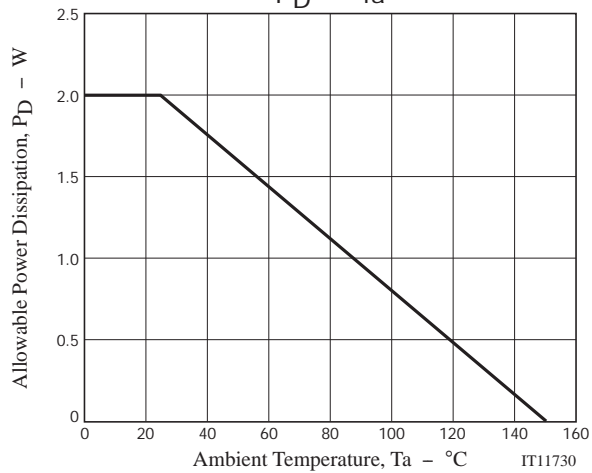
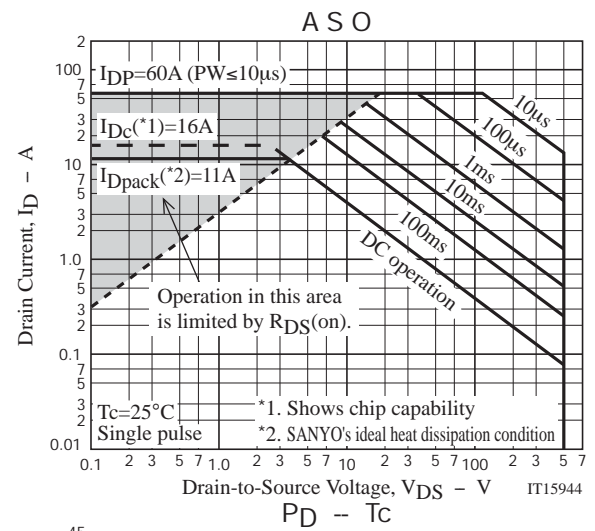
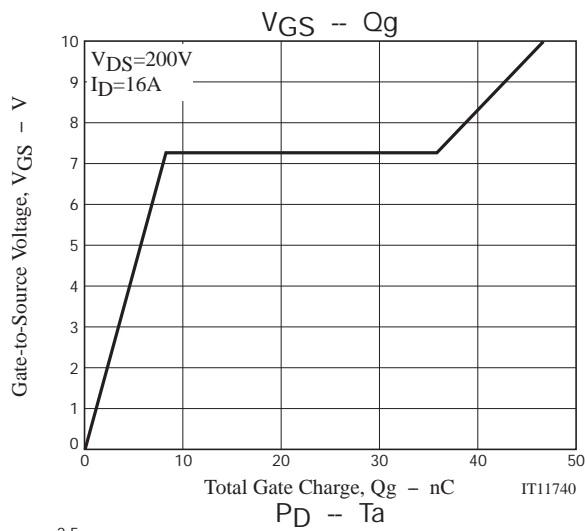


Fig.3 Reverse Recovery Time Test Circuit







Note on usage : Since the BFL4037 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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