



BFL4007 — N-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- Reverse recovery time $t_{rr}=95\text{ns}$ (typ)
- Input capacitance $C_{iss}=1200\text{pF}$ (typ)
- ON-resistance $R_{DS(on)}=0.52\Omega$ (typ)
- 10V drive

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		600	V
Gate-to-Source Voltage	V_{GSS}		± 30	V
Drain Current (DC)	I_{Dc}^{*1}	Limited only by maximum temperature $T_{ch}=150^\circ\text{C}$	14	A
	I_{Dpack}^{*2}	$T_c=25^\circ\text{C}$ (SANYO's ideal heat dissipation condition) ^{*3}	8.7	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	49	A
Source-to-Drain Diode Forward Current (DC)	I_S		14	A
Source-to-Drain Diode Forward Current (Pulse)	I_{SP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	49	A
Allowable Power Dissipation	P_D		2.0	W
		$T_c=25^\circ\text{C}$ (SANYO's ideal heat dissipation condition) ^{*3}	40	W

Note : *1 Shows chip capability

*2 Package limited

*3 SANYO's condition is radiation from backside.

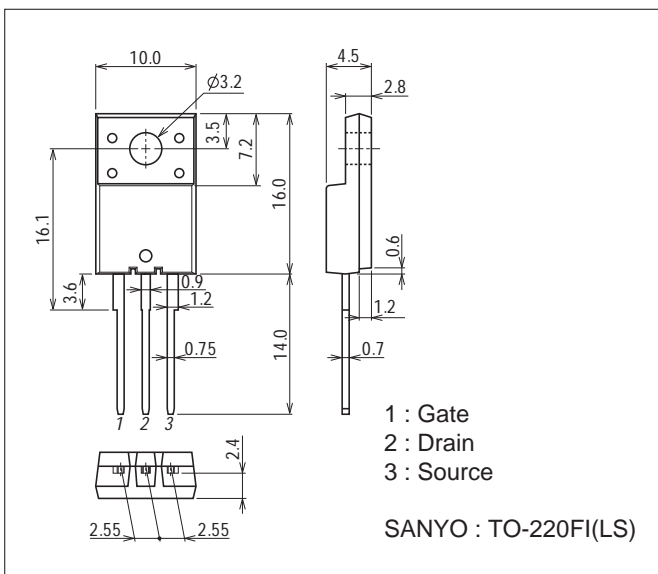
The method is applying silicone grease to the backside of the device and attaching the device to water-cooled radiator made of aluminium.

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Package Dimensions

unit : mm (typ)

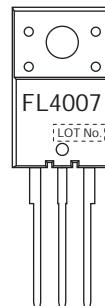
7509-002



Product & Package Information

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

Marking



BFL4007

Continued from preceding page.

Parameter	Symbol	Conditions	Ratings	Unit
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-55 to +150	°C
Avalanche Energy (Single Pulse) *4	EAS		215	mJ
Avalanche Current *5	I _{AV}		8.5	A

Note : *4 V_{DD}=99V, L=5mH, I_{AV}=8.5A (Fig.1)

*5 L≤5mH, single pulse

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	600			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =480V, V _{GS} =0V			100	μA
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	3		5	V
Forward Transfer Admittance	y _{fs}	V _{DS} =10V, I _D =7A	4.3	8.5		S
Static Drain-to-Source On-State Resistance	R _{DSON}	I _D =7A, V _{GS} =10V		0.52	0.68	Ω
Input Capacitance	C _{iss}	V _{DS} =30V, f=1MHz		1200		pF
Output Capacitance	C _{oss}	V _{DS} =30V, f=1MHz		220		pF
Reverse Transfer Capacitance	C _{rss}	V _{DS} =30V, f=1MHz		43		pF
Turn-ON Delay Time	t _{d(on)}	See Fig.2		27		ns
Rise Time	t _r	See Fig.2		72		ns
Turn-OFF Delay Time	t _{d(off)}	See Fig.2		122		ns
Fall Time	t _f	See Fig.2		48		ns
Total Gate Charge	Q _g	V _{DS} =200V, V _{GS} =10V, I _D =14A		46		nC
Gate-to-Source Charge	Q _{gs}	V _{DS} =200V, V _{GS} =10V, I _D =14A		8.6		nC
Gate-to-Drain "Miller" Charge	Q _{gd}	V _{DS} =200V, V _{GS} =10V, I _D =14A		26.4		nC
Diode Forward Voltage	V _{SD}	I _S =14A, V _{GS} =0V		1.1	1.5	V
Reverse Recovery Time	t _{rr}	See Fig.3		95		ns
Reverse Recovery Charge	Q _{rr}	I _S =14A, V _{GS} =0V, di/dt=100A/μs		250		nC

Fig.1 Avalanche Resistance Test Circuit

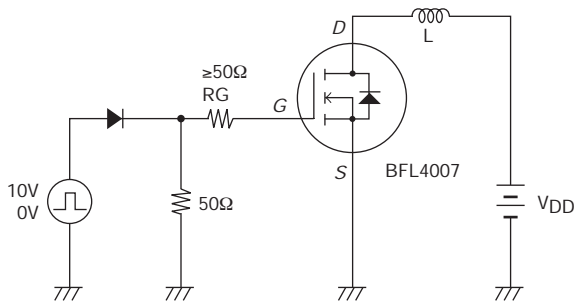


Fig.2 Switching Time Test Circuit

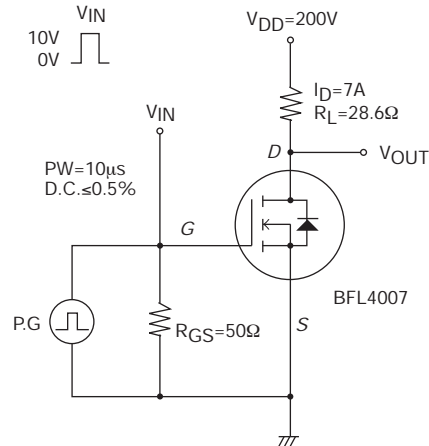
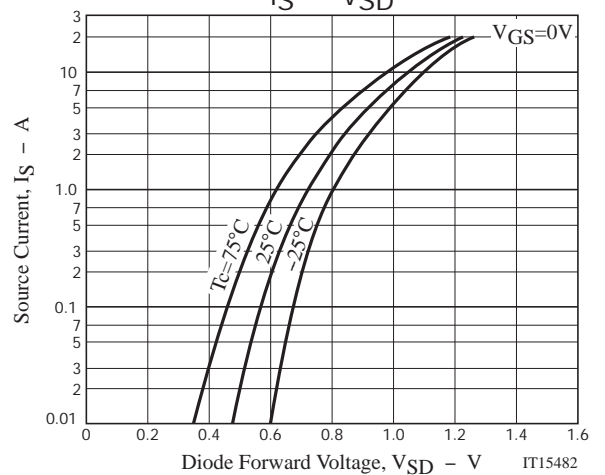
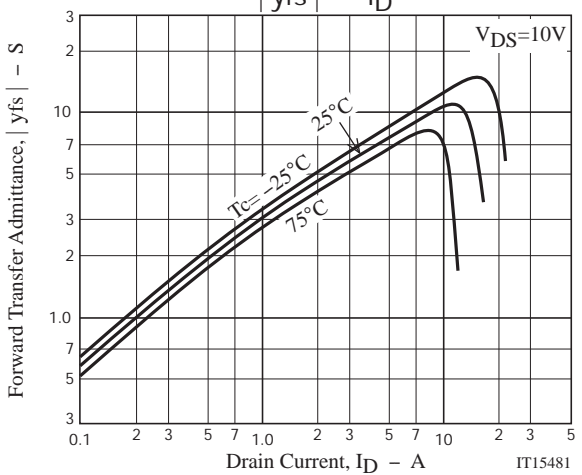
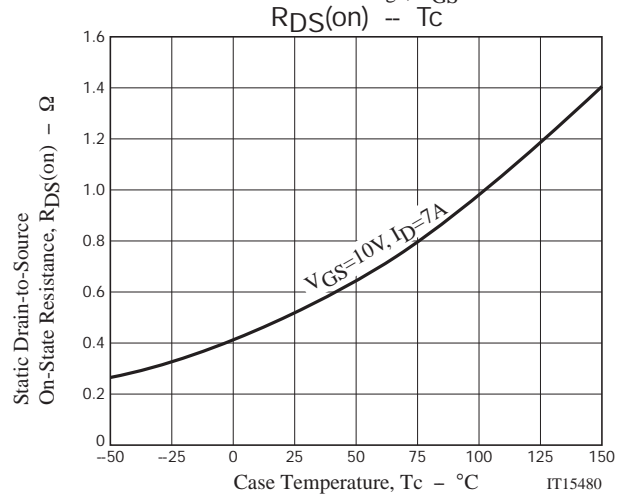
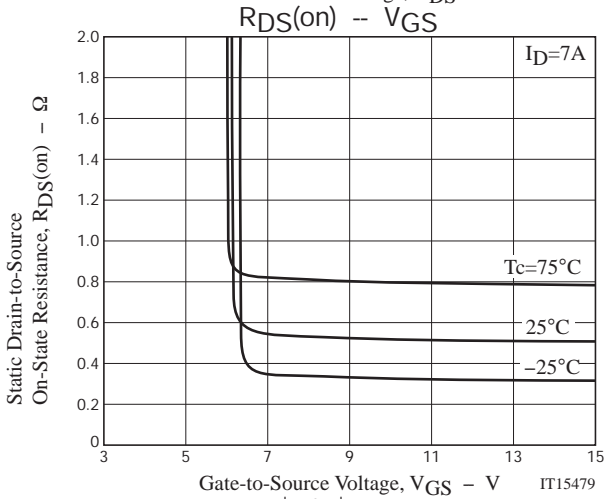
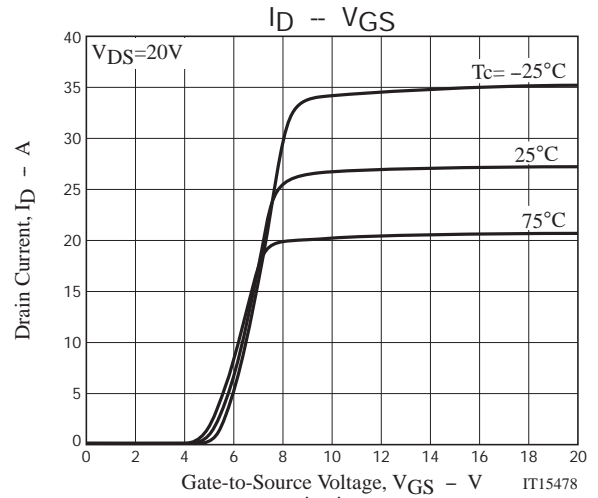
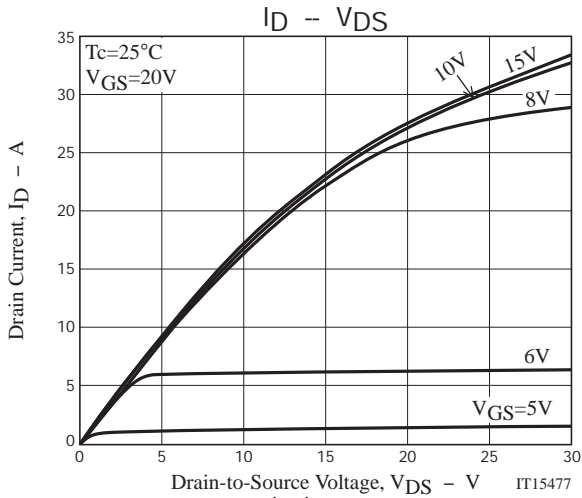
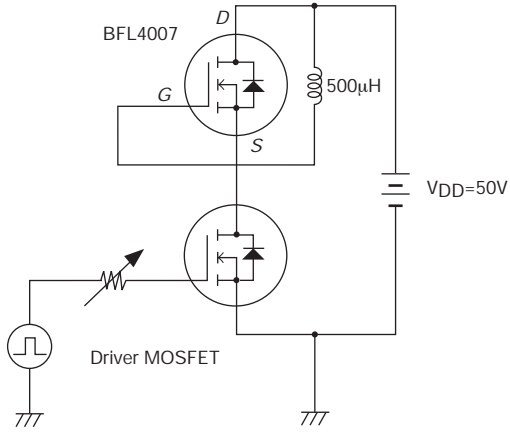
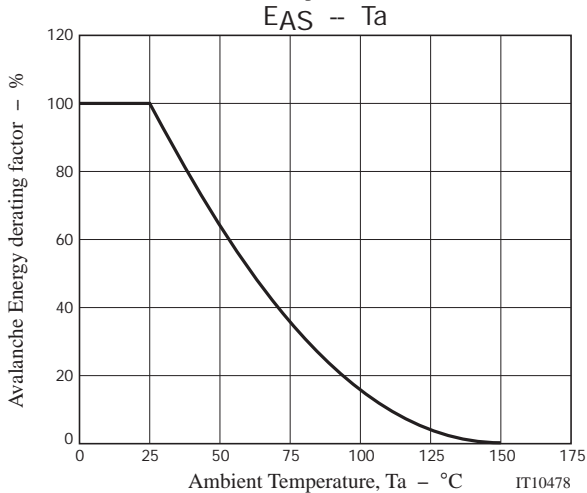
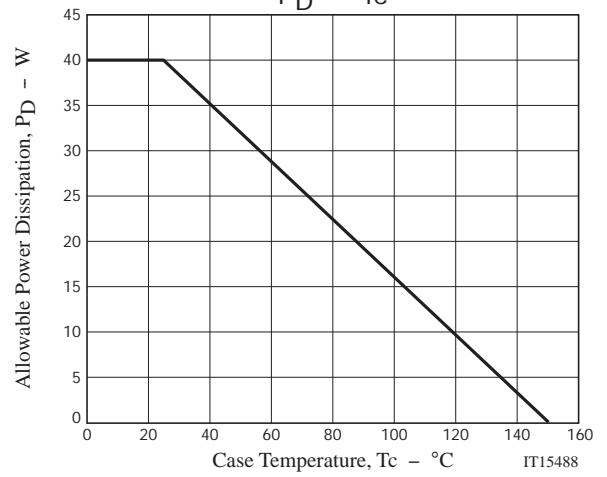
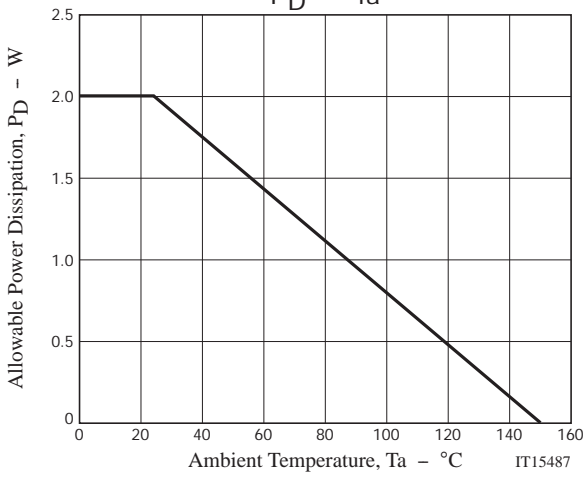
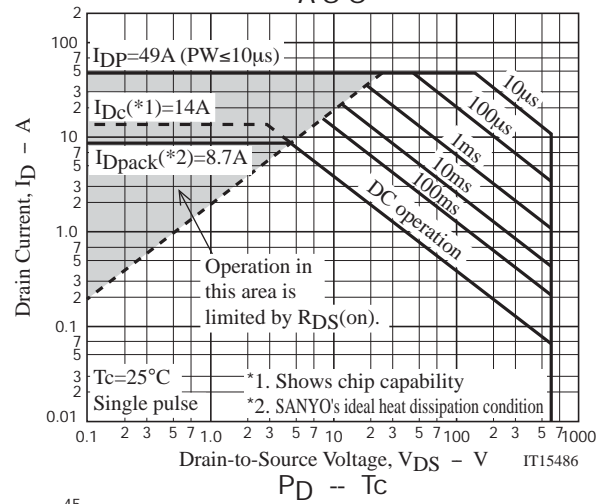
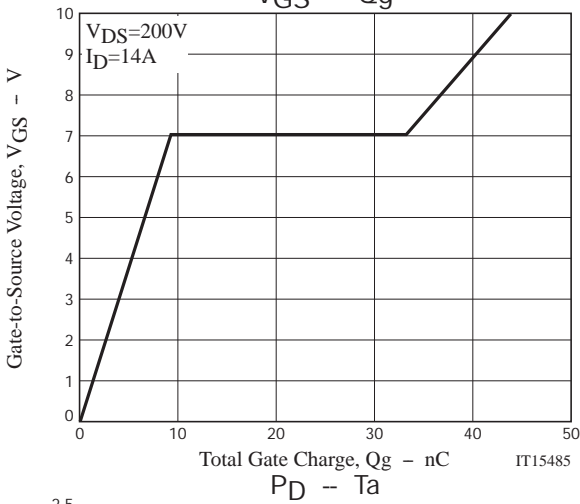
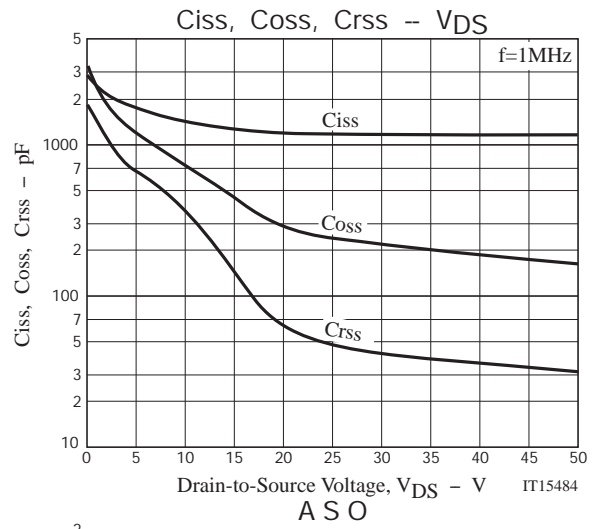
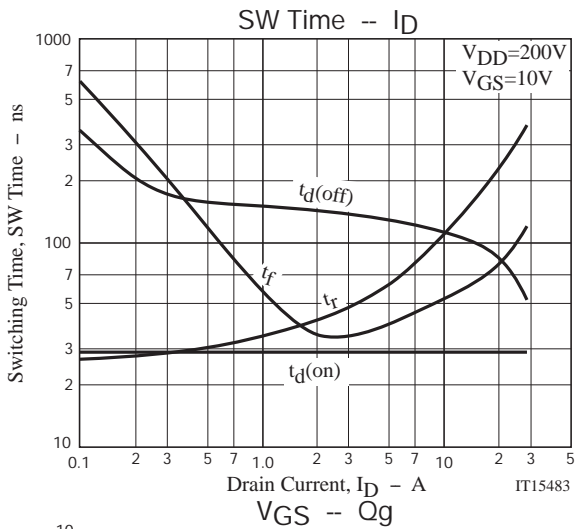


Fig.3 trr Reverse Recovery Resistance Test Circuit





Note on usage : Since the BFL4007 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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