



2SK4197FS

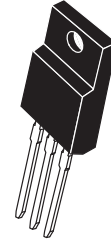
N-Channel Power MOSFET 600V, 3.5A, 3.25Ω, TO-220F-3FS

ON Semiconductor®

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Features

- ON-resistance $R_{DS(on)}=2.5\Omega$ (typ.)
- Input capacitance $C_{iss}=260\text{pF}$ (typ.)
- 10V drive



TO-220F-3FS

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_D | | 3.5 | A |
| Drain Current (DC) Limited by Package | I_{DL} | | 3.3 | A |
| Drain Current (Pulse) | I_{DP} | $PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$ | 13 | A |
| Allowable Power Dissipation | P_D | | 2.0 | W |
| | | $T_c=25^\circ\text{C}$ | 28 | W |
| Channel Temperature | T_{ch} | | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | | -55 to +150 | $^\circ\text{C}$ |
| Avalanche Energy (Single Pulse) *1 | E_{AS} | | 29 | mJ |
| Avalanche Current *2 | I_{AV} | | 3.3 | A |

Note : *1 $V_{DD}=50\text{V}$, $L=5\text{mH}$, $I_{AV}=3.3\text{A}$ (Fig.1)*2 $L \leq 5\text{mH}$, Single pulse

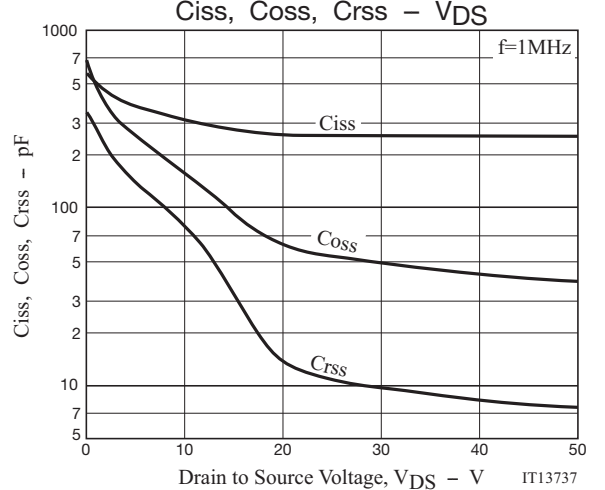
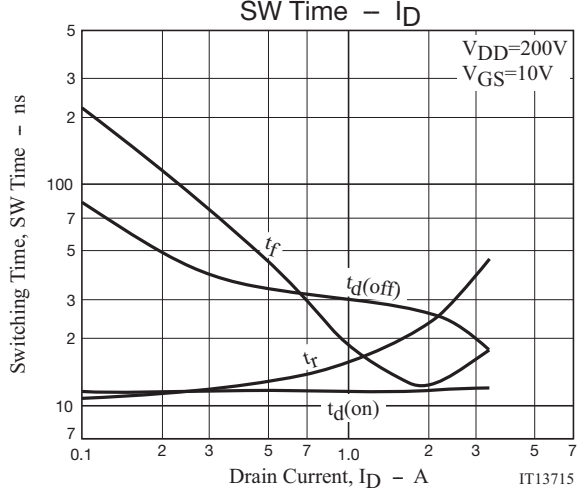
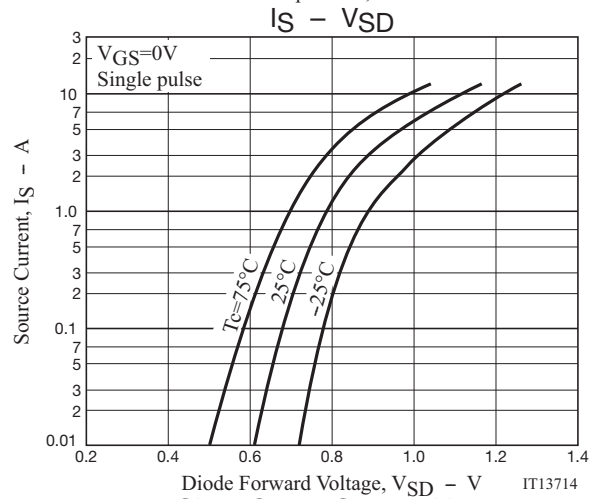
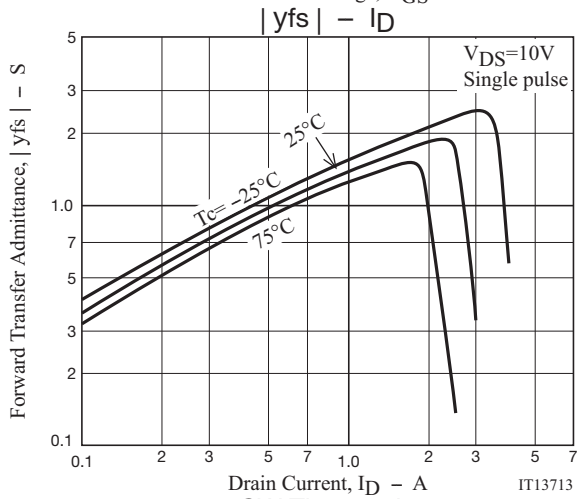
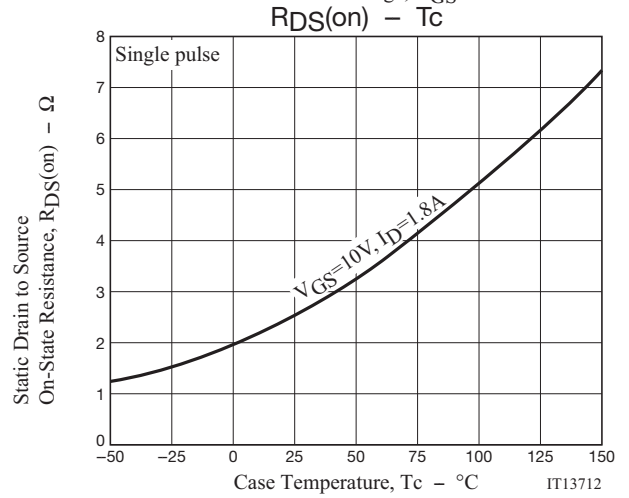
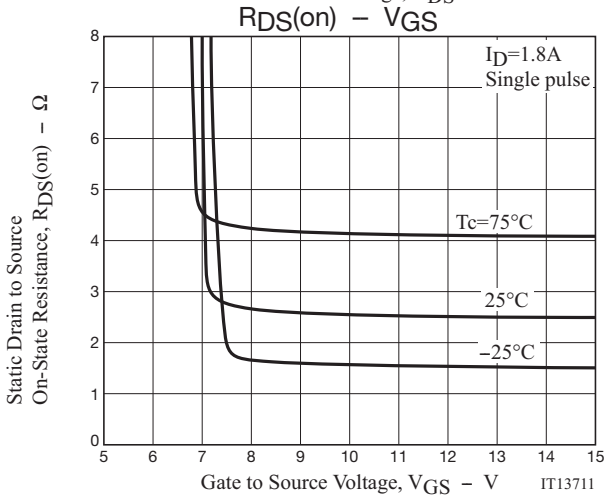
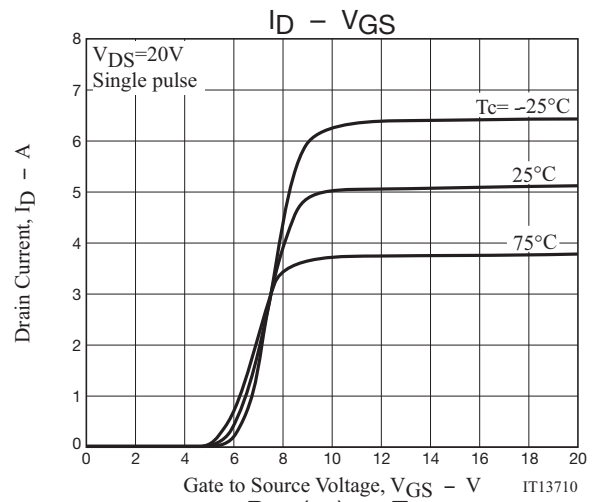
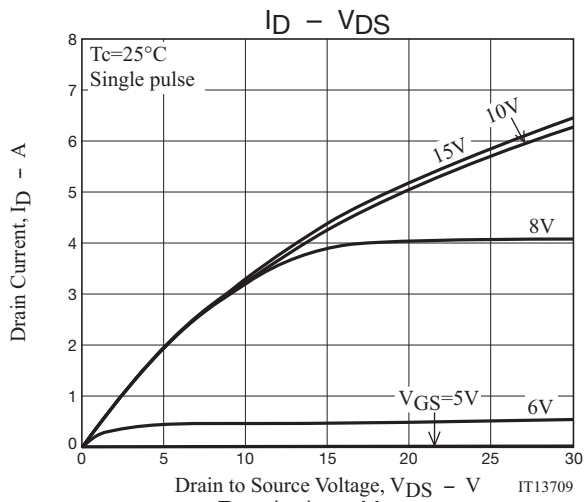
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

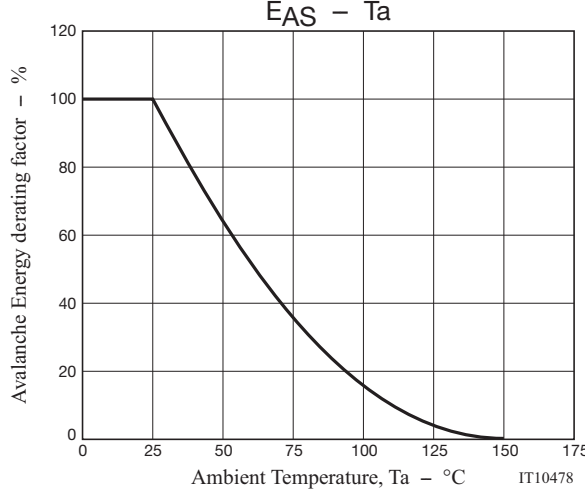
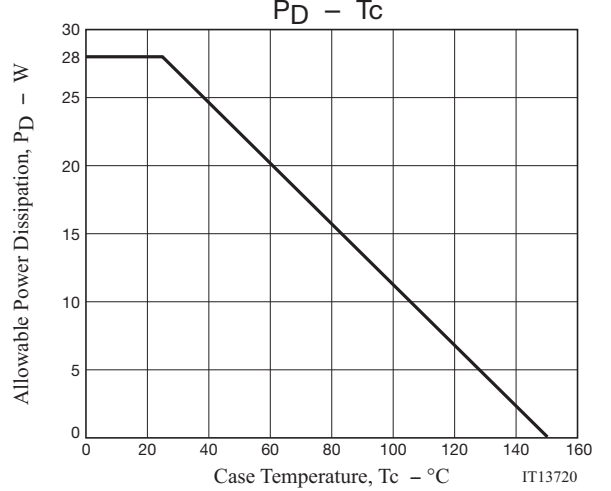
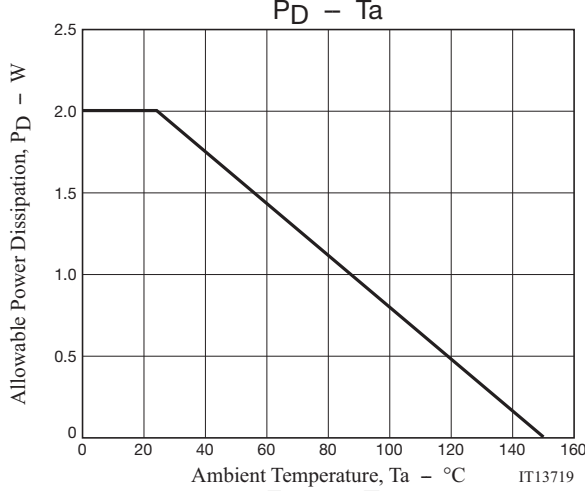
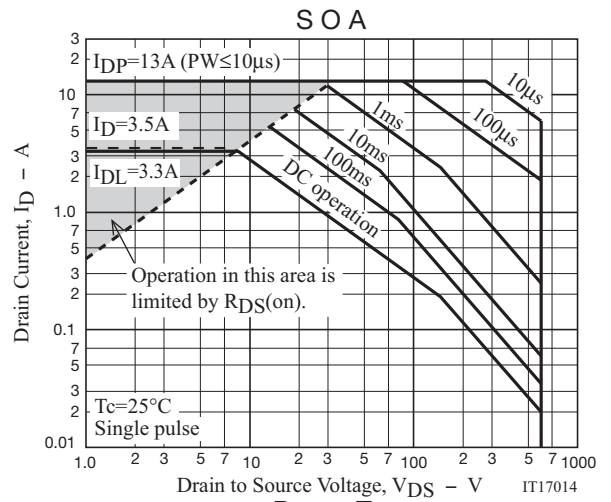
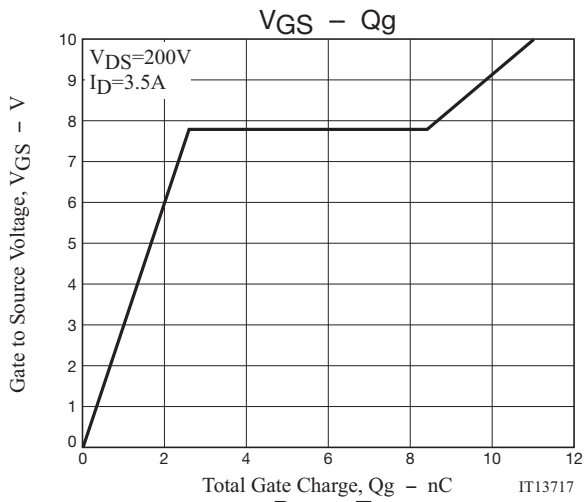
Electrical Characteristics at $T_a=25^\circ\text{C}$

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|---------------|--|---------|-----|-----------|---------------|
| | | | min | typ | max | |
| Drain to Source Breakdown Voltage | $V_{(BR)DSS}$ | $I_D=10\text{mA}$, $V_{GS}=0\text{V}$ | 600 | | | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=480\text{V}$, $V_{GS}=0\text{V}$ | | | 100 | μA |
| Gate to Source Leakage Current | I_{GSS} | $V_{GS}=\pm 30\text{V}$, $V_{DS}=0\text{V}$ | | | ± 100 | nA |
| Cutoff Voltage | $V_{GS(off)}$ | $V_{DS}=10\text{V}$, $I_D=1\text{mA}$ | 3 | | 5 | V |
| Forward Transfer Admittance | $ y_{fs} $ | $V_{DS}=10\text{V}$, $I_D=1.8\text{A}$ | 0.8 | 1.6 | | S |
| Static Drain to Source On-State Resistance | $R_{DS(on)}$ | $I_D=1.8\text{A}$, $V_{GS}=10\text{V}$ | | 2.5 | 3.25 | Ω |
| Input Capacitance | C_{iss} | $V_{DS}=30\text{V}$, $f=1\text{MHz}$ | | 260 | | pF |
| Output Capacitance | C_{oss} | | | | 50 | pF |
| Reverse Transfer Capacitance | C_{rss} | | | | 9.7 | pF |
| Turn-ON Delay Time | $t_d(on)$ | | Fig.2 | | 12 | |
| Rise Time | t_r | | | | 20 | ns |
| Turn-OFF Delay Time | $t_d(off)$ | | | | 28 | ns |
| Fall Time | t_f | | | | 12 | ns |
| Total Gate Charge | Q_g | $V_{DS}=200\text{V}$, $V_{GS}=10\text{V}$, $I_D=3.5\text{A}$ | | 11 | | nC |
| Gate to Source Charge | Q_{gs} | | | | 2.6 | nC |
| Gate to Drain "Miller" Charge | Q_{gd} | | | | 5.8 | nC |
| Diode Forward Voltage | V_{SD} | $I_S=3.5\text{A}$, $V_{GS}=0\text{V}$ | | 0.9 | 1.2 | V |

ORDERING INFORMATION

See detailed ordering and shipping information on page 4 of this data sheet.





2SK4197FS

Package Dimensions

2SK4197FS

TO-220F-3FS

CASE 221AM

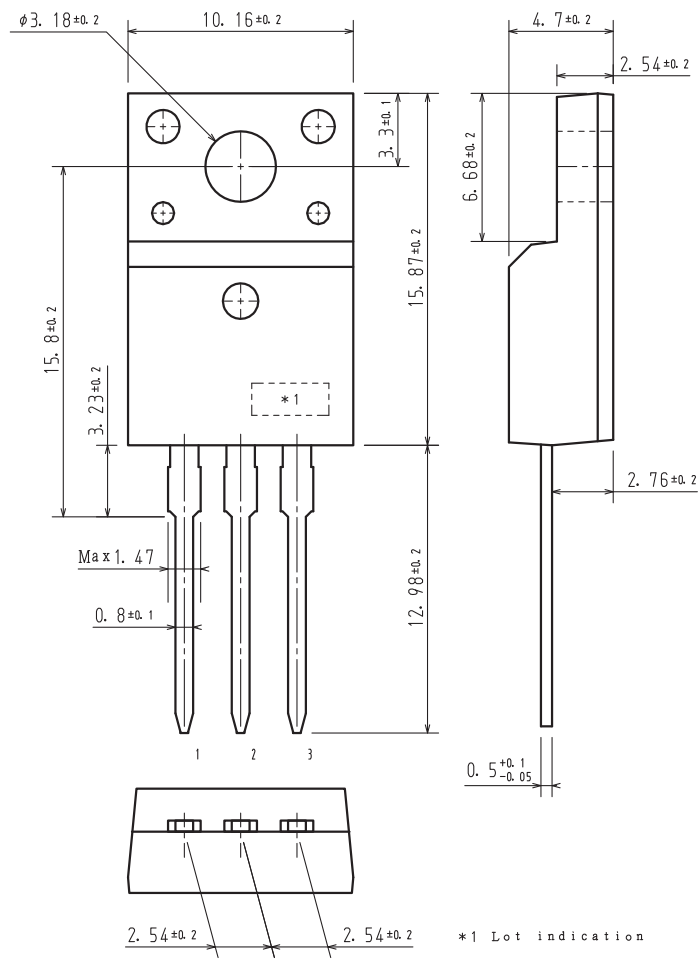
ISSUE O

Unit : mm

1: Gate

2: Drain

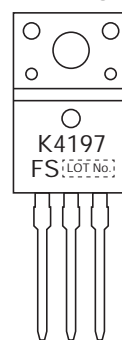
3: Source



Ordering & Package Information

| Device | Package | Shipping | memo |
|-----------|----------------------|-----------------|---------|
| 2SK4197FS | TO-220F-3FS SC-67 | 50 pcs./tube | Pb-Free |

Marking



Electrical Connection

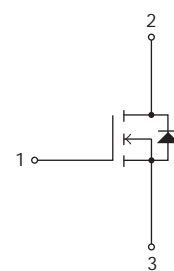


Fig.1 Unclamped Inductive Switching Test Circuit

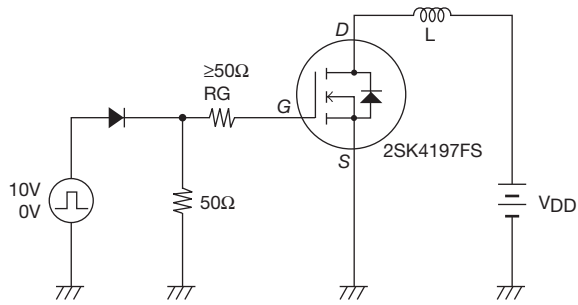
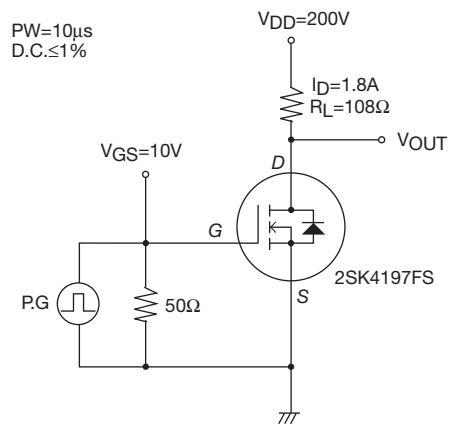


Fig.2 Switching Time Test Circuit



Note on usage : Since the 2SK4197FS is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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