Ordering number : ENA0786



SANYO Semiconductors

DATA SHEET

N-Channel Silicon MOSFET

# SFT1403 — General-Purpose Switching Device Applications

## Features

- Motor drive application.
- Low ON-resistance.
- 4V drive.

## Specifications

### Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Drain-to-Source Voltage | $V_{DSS}$ | | 35 | V |
| Gate-to-Source Voltage | $V_{GSS}$ | | ±20 | V |
| Drain Current (DC) | $I_D$ | | 14 | A |
| Drain Current (PW≤10μs) | $I_{DP}$ | PW≤10μs, duty cycle≤1% | 56 | A |
| Allowable Power Dissipation | $P_D$ | | 1.0 | W |
| | | Tc=25°C | 20 | 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, $V_{GS}$=0V | 35 | | | V |
| Zero-Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=35V, $V_{GS}$=0V | | | 1 | μA |
| Gate-to-Source Leakage Current | $I_{GSS}$ | $V_{GS}$=±16V, $V_{DS}$=0V | | | ±10 | μA |
| Cutoff Voltage | $V_{GS}(off)$ | $V_{DS}$=10V, $I_D$=1mA | 1.2 | | 2.6 | V |
| Forward Transfer Admittance | $\|yfs\|$ | $V_{DS}$=10V, $I_D$=7A | 6.6 | 11 | | S |
| Static Drain-to-Source On-State Resistance | $R_{DS}(on)1$ | $I_D$=7A, $V_{GS}$=10V | | 17 | 23 | mΩ |
| | $R_{DS}(on)2$ | $I_D$=7A, $V_{GS}$=4V | | 25 | 35 | mΩ |

Marking : T1403

Continued on next page.



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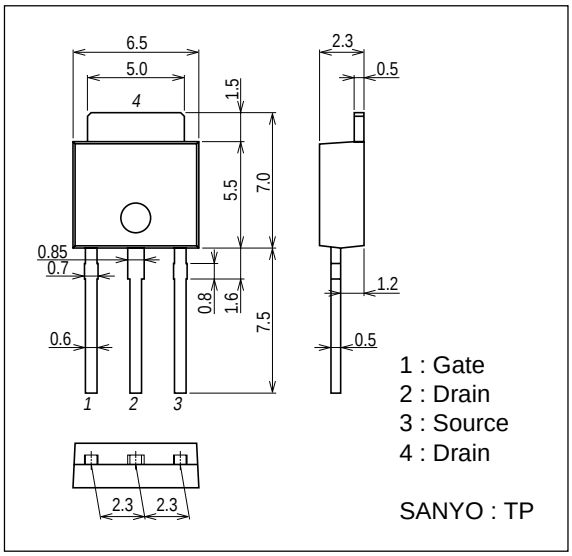
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Input Capacitance | Ciss | $V_{DS}$=20V, f=1MHz | | 2230 | | pF |
| Output Capacitance | Coss | $V_{DS}$=20V, f=1MHz | | 305 | | pF |
| Reverse Transfer Capacitance | Crss | $V_{DS}$=20V, f=1MHz | | 225 | | pF |
| Turn-ON Delay Time | $t_{d}$(on) | See specified Test Circuit. | | 21 | | ns |
| Rise Time | $t_{r}$ | See specified Test Circuit. | | 110 | | ns |
| Turn-OFF Delay Time | $t_{d}$(off) | See specified Test Circuit. | | 140 | | ns |
| Fall Time | $t_{f}$ | See specified Test Circuit. | | 100 | | ns |
| Total Gate Charge | Qg | $V_{DS}$=20V, $V_{GS}$=10V, $I_{D}$=14A | | 39 | | nC |
| Gate-to-Source Charge | Qgs | $V_{DS}$=20V, $V_{GS}$=10V, $I_{D}$=14A | | 7.7 | | nC |
| Gate-to-Drain “Miller” Charge | Qgd | $V_{DS}$=20V, $V_{GS}$=10V, $I_{D}$=14A | | 7.2 | | nC |
| Diode Forward Voltage | $V_{SD}$ | $I_{S}$=14A, $V_{GS}$=0V | | 0.92 | 1.2 | V |

## Package Dimensions

unit : mm (typ)

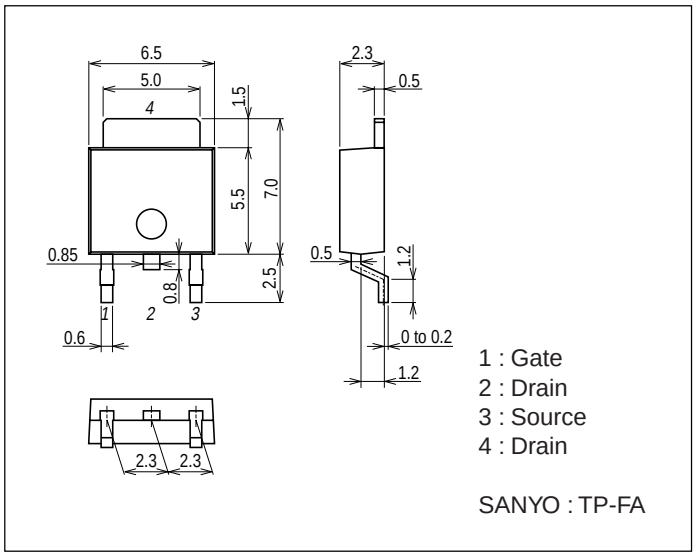
7518-004



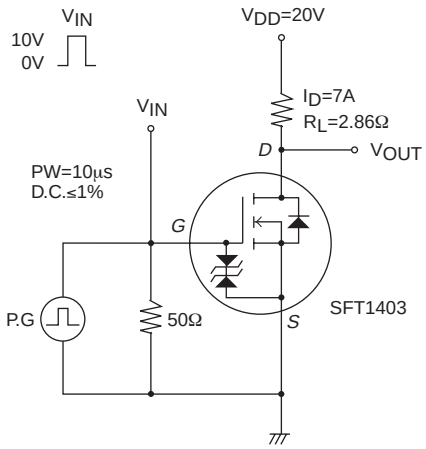

## Package Dimensions

unit : mm(typ)

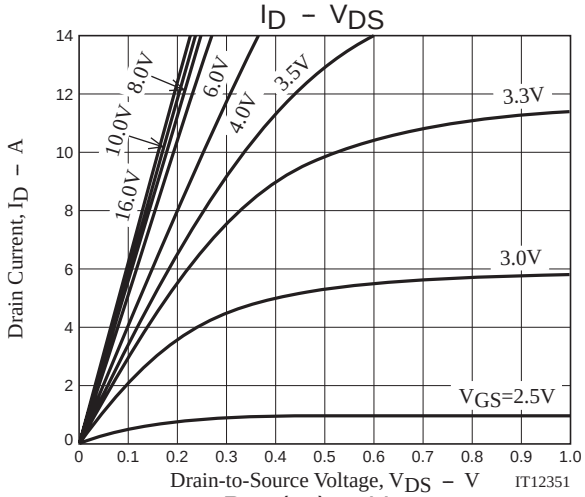
7003-004



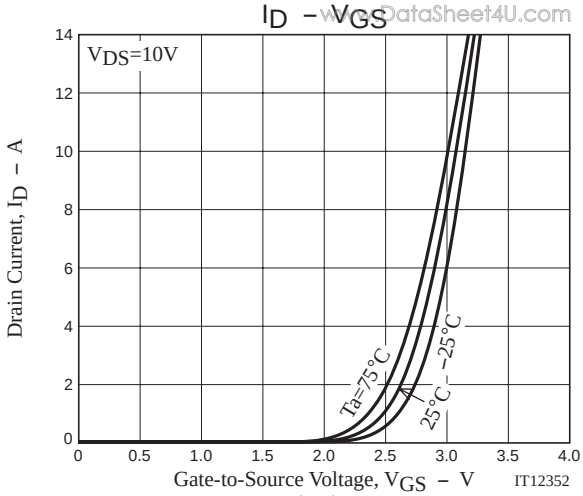

## Switching Time Test Circuit



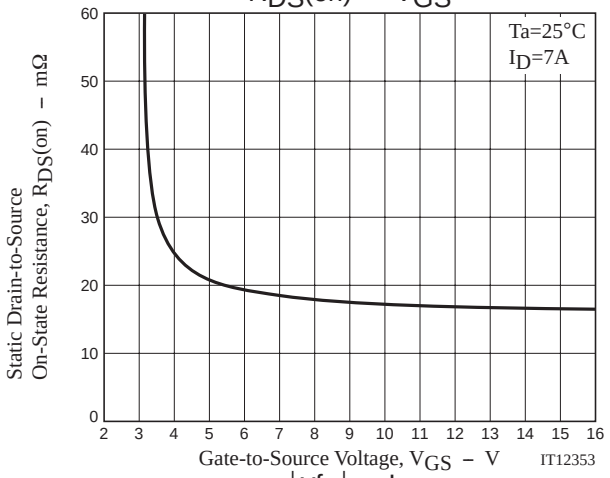
$I_D$ – $V_{DS}$



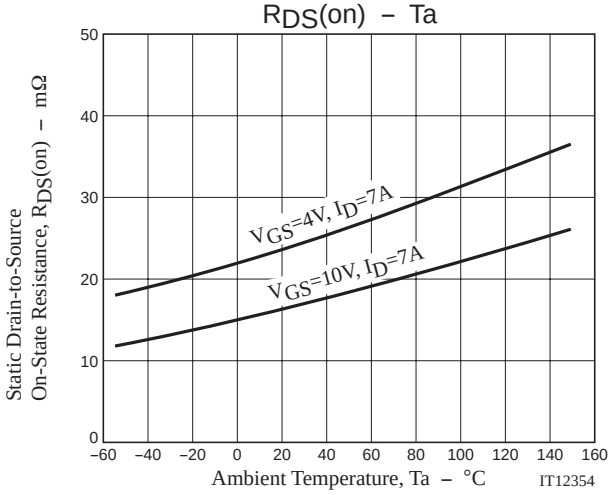

$I_D$ – $V_{GS}$



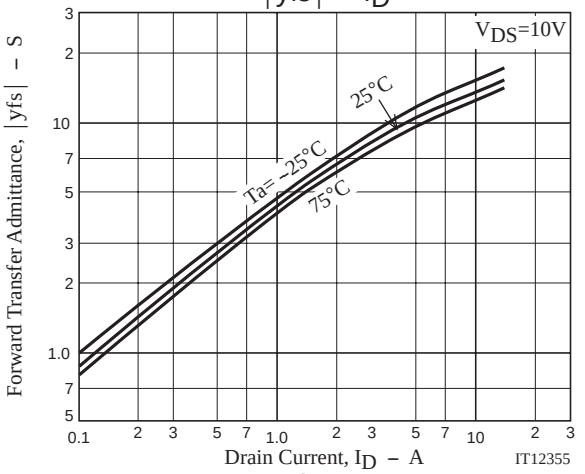

$R_{DS}(on)$ – $V_{GS}$



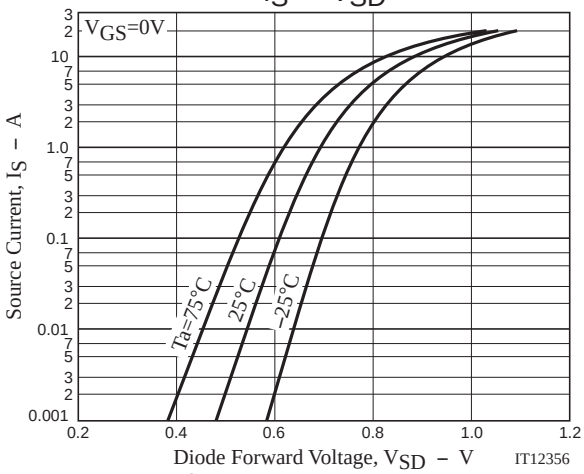

$R_{DS}(on)$ – Ta



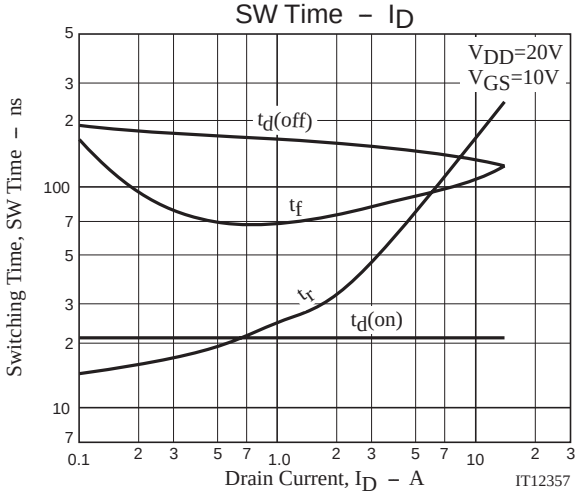

$|yfs|$ – $I_D$



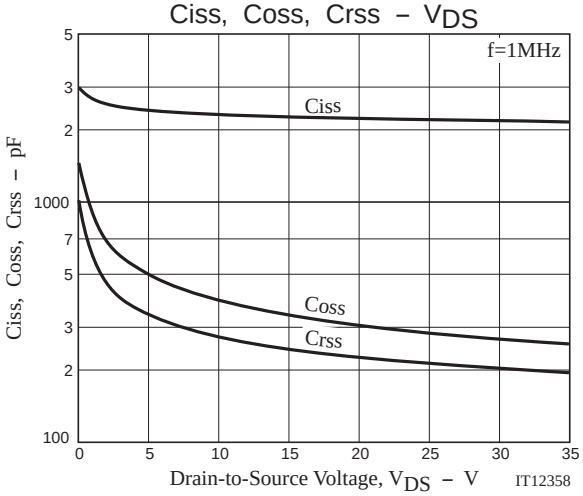

$I_S$ – $V_{SD}$

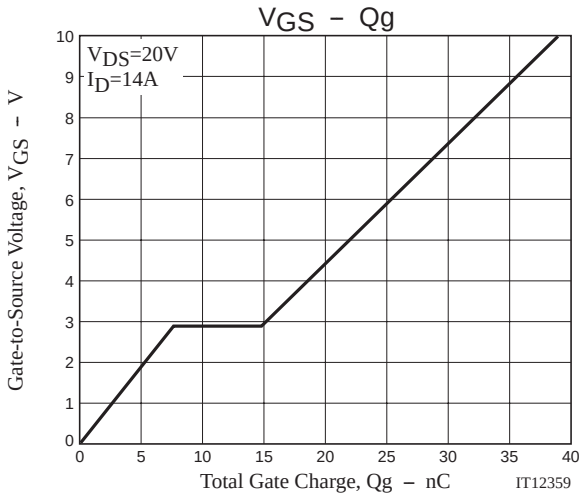


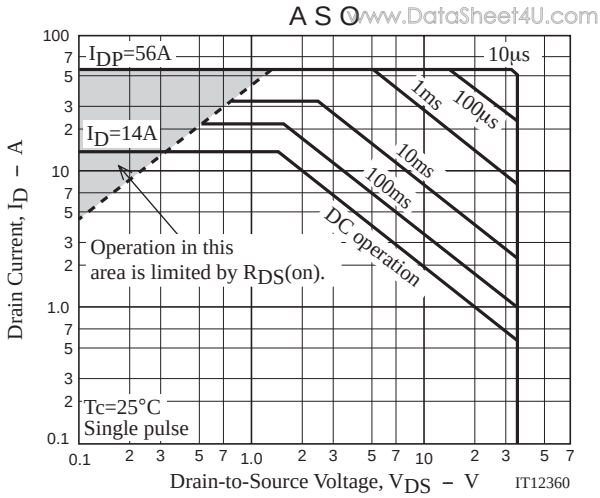

SW Time – $I_D$

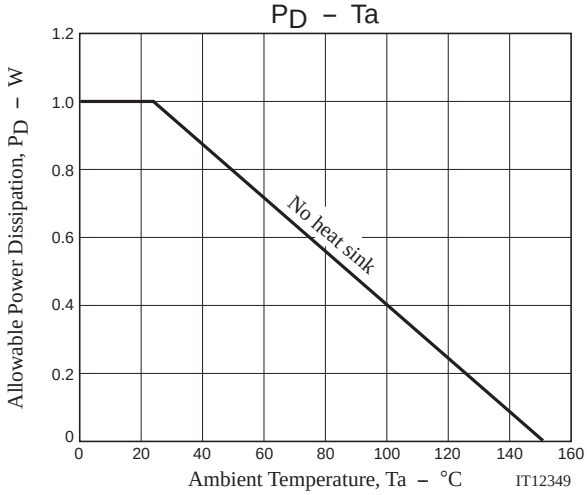


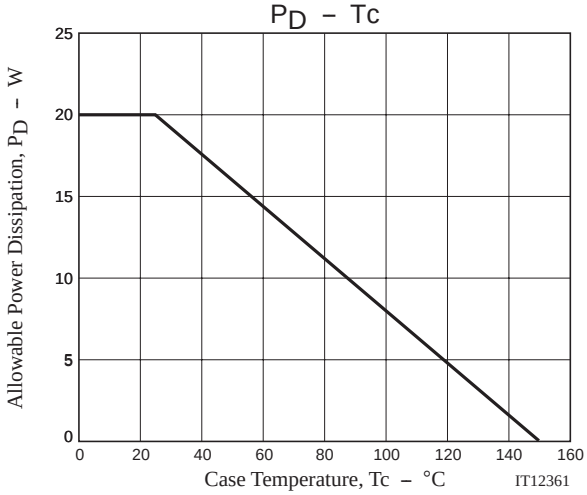

Ciss, Coss, Crss – $V_{DS}$






Note on usage : Since the SFT1403 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.



This catalog provides information as of April, 2007. Specifications and information herein are subject to change without notice.