Ordering number : ENA0779

SANYO Semiconductors

DATA SHEET

N-Channel Silicon MOSFET

SFT1405 — 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}		45	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		10	A
Drain Current (PW≤10μs)	I_{DP}	PW≤10μs, duty cycle≤1%	40	A
Allowable Power Dissipation	P_D		1.0	W
		Tc=25°C	15	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	45			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=45V, 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=5A	3.6	6		S
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=5A, V_{GS}=10V		34	45	mΩ
	$R_{DS}(on)2$	I_D=5A, V_{GS}=4V		53	74	mΩ

Marking : T1405

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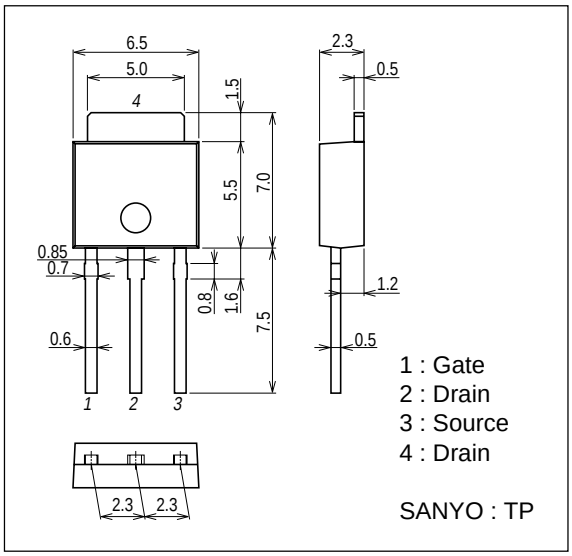
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		860		pF
Output Capacitance	Coss	V_{DS}=20V, f=1MHz		105		pF
Reverse Transfer Capacitance	Crss	V_{DS}=20V, f=1MHz		75		pF
Turn-ON Delay Time	t_{d}(on)	See specified Test Circuit.		14		ns
Rise Time	t_{r}	See specified Test Circuit.		64		ns
Turn-OFF Delay Time	t_{d}(off)	See specified Test Circuit.		60		ns
Fall Time	t_{f}	See specified Test Circuit.		65		ns
Total Gate Charge	Qg	V_{DS}=24V, V_{GS}=10V, I_{D}=10A		18.1		nC
Gate-to-Source Charge	Qgs	V_{DS}=24V, V_{GS}=10V, I_{D}=10A		2.6		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=24V, V_{GS}=10V, I_{D}=10A		4		nC
Diode Forward Voltage	V_{SD}	I_{S}=10A, V_{GS}=0V		0.97	1.2	V

Package Dimensions

unit : mm (typ)

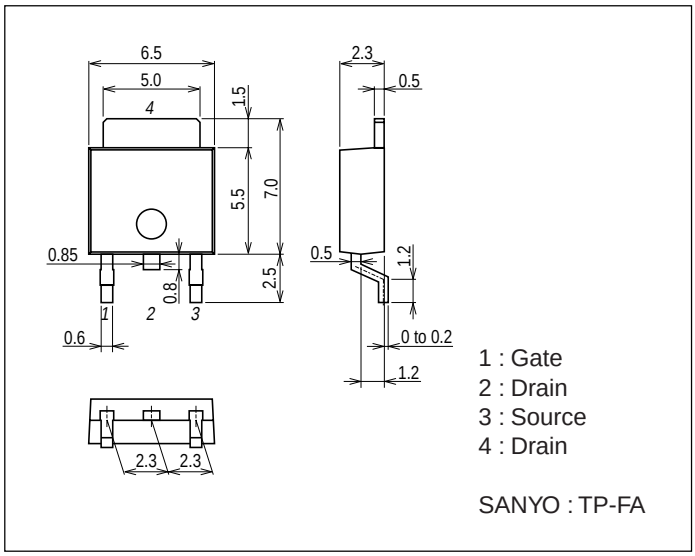
7518-004



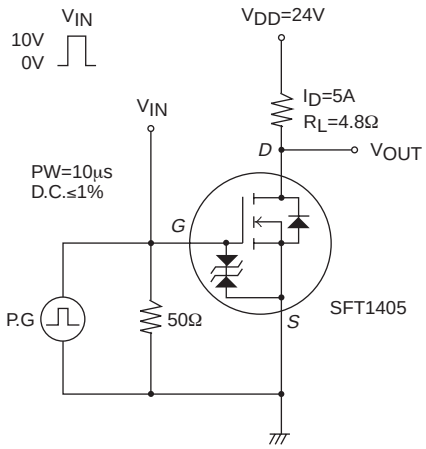
Package Dimensions

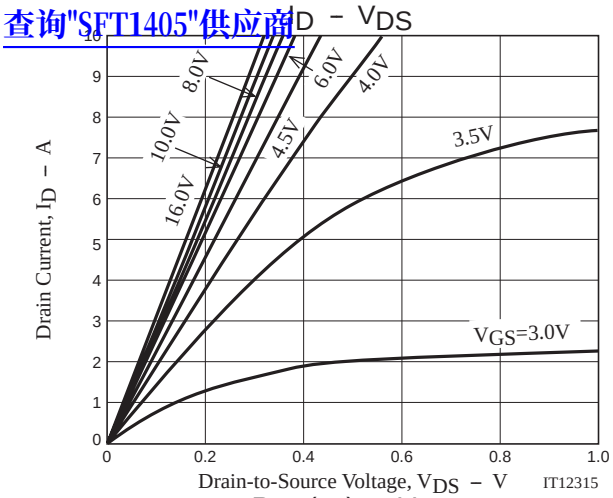
unit : mm(typ)

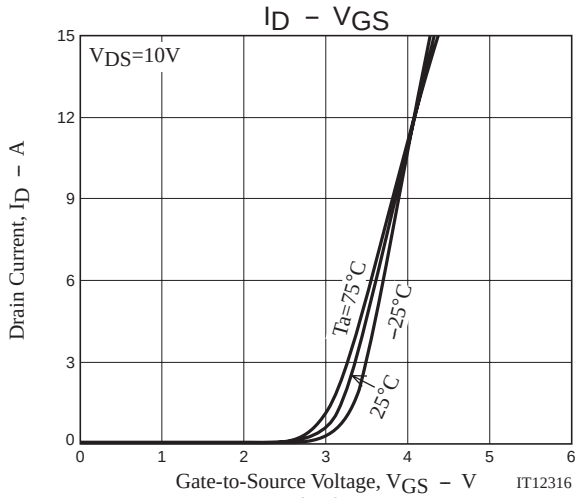
7003-004

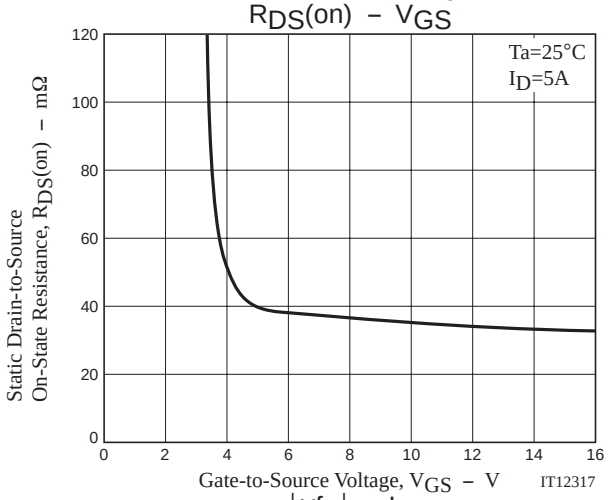


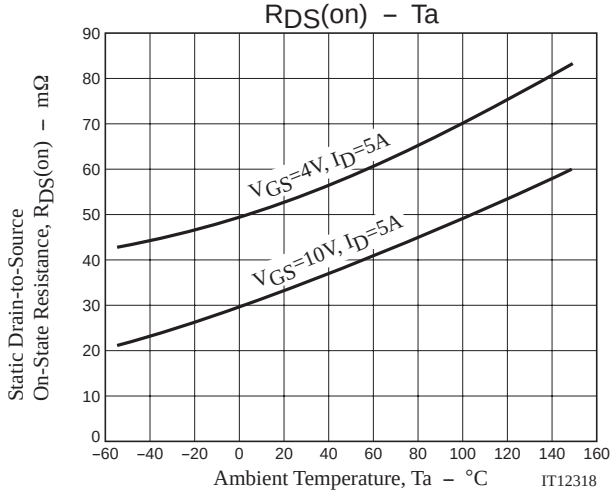
Switching Time Test Circuit

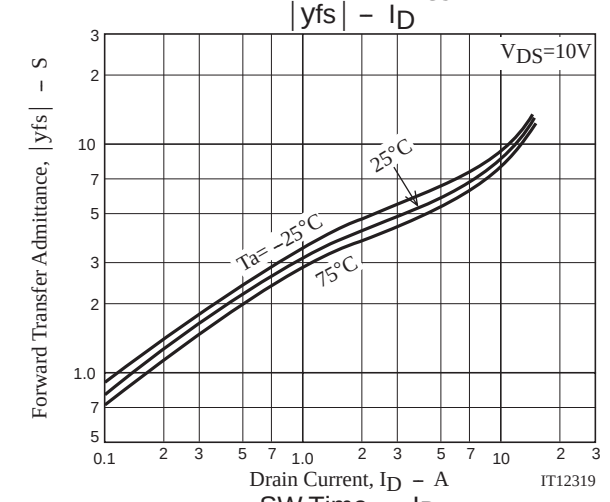


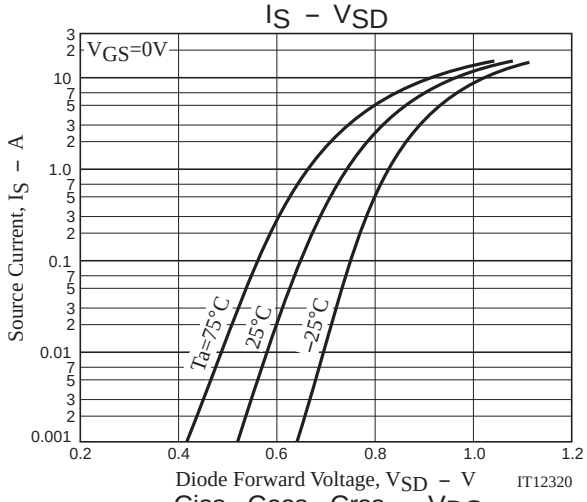


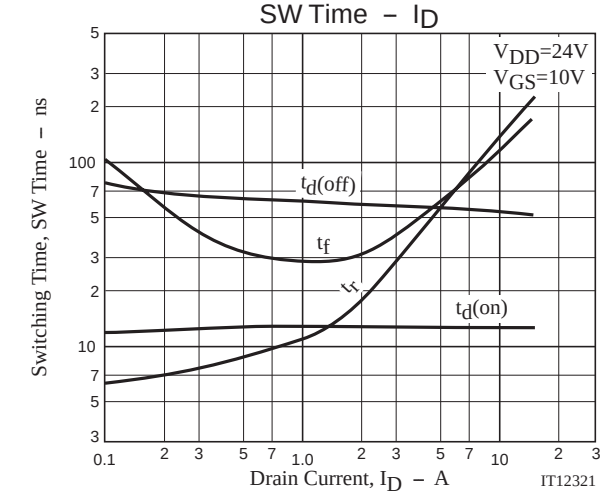


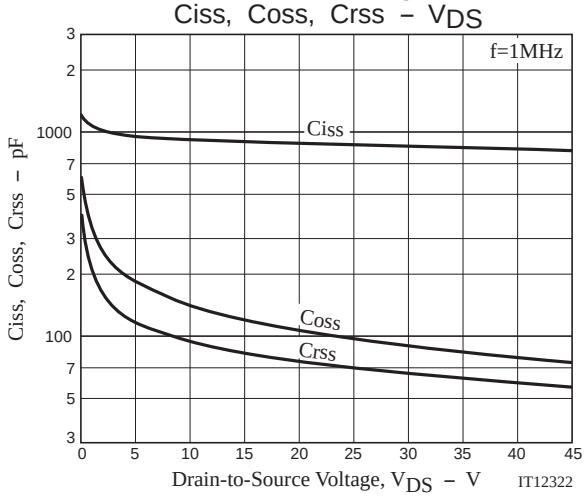


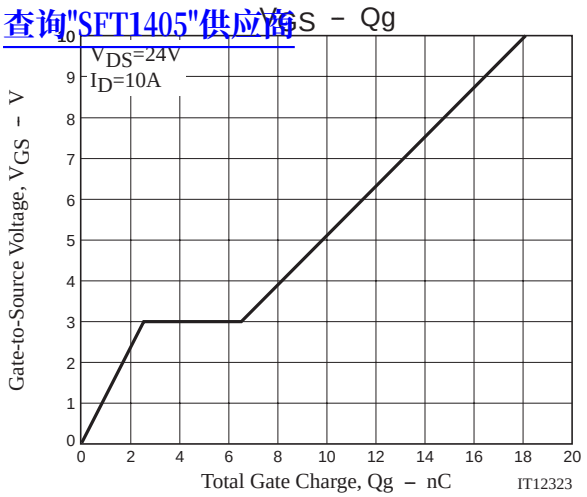


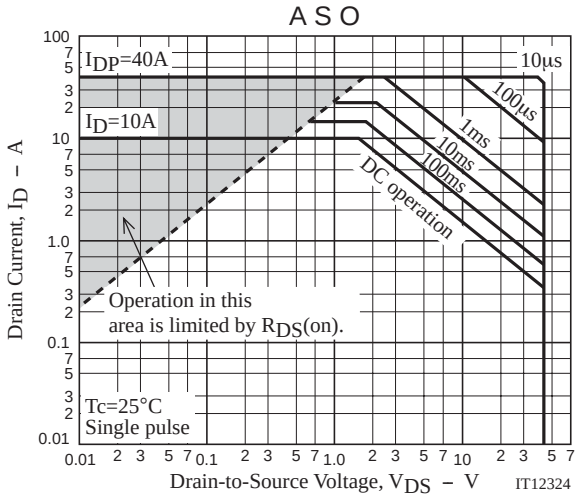


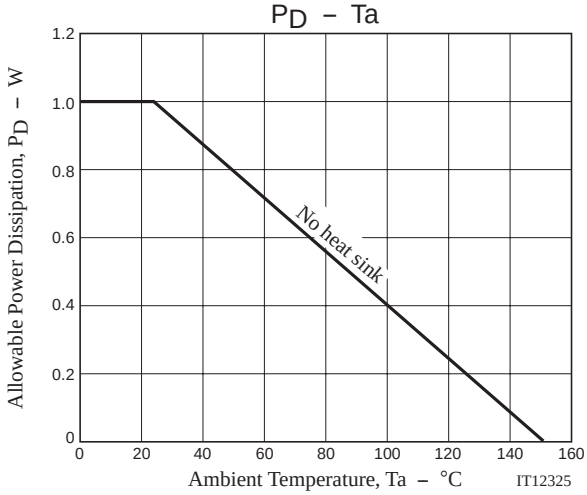


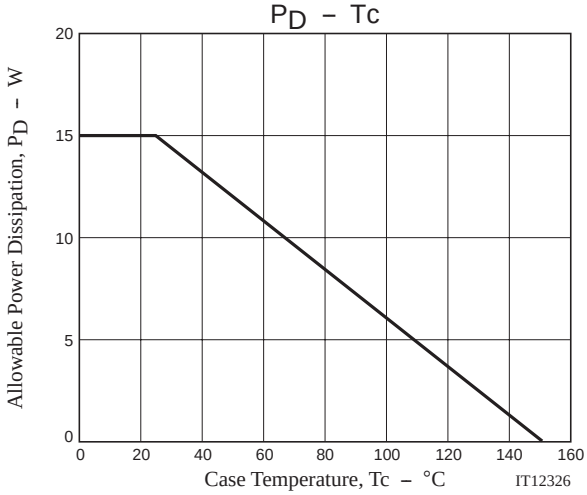












Note on usage : Since the SFT1405 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.