Ordering number : ENA0764

SANYO Semiconductors

DATA SHEET

N-Channel Silicon MOSFET

SFT1407 — 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		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	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=7A	5.8	9.7		S
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=7A, V_{GS}=10V		21	28	mΩ
	$R_{DS}(on)2$	I_D=7A, V_{GS}=4V		29	41	mΩ

Marking : T1407

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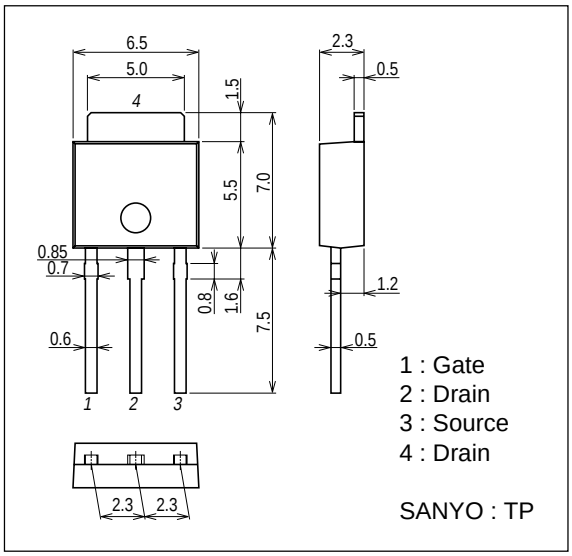
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		2225		pF
Output Capacitance	Coss	V_{DS}=20V, f=1MHz		260		pF
Reverse Transfer Capacitance	Crss	V_{DS}=20V, f=1MHz		190		pF
Turn-ON Delay Time	t_{d}(on)	See specified Test Circuit.		27		ns
Rise Time	t_{r}	See specified Test Circuit.		50		ns
Turn-OFF Delay Time	t_{d}(off)	See specified Test Circuit.		150		ns
Fall Time	t_{f}	See specified Test Circuit.		80		ns
Total Gate Charge	Qg	V_{DS}=24V, V_{GS}=10V, I_{D}=14A		40		nC
Gate-to-Source Charge	Qgs	V_{DS}=24V, V_{GS}=10V, I_{D}=14A		6		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=24V, V_{GS}=10V, I_{D}=14A		8		nC
Diode Forward Voltage	V_{SD}	I_{S}=14A, V_{GS}=0V		0.92	1.2	V

Package Dimensions

unit : mm (typ)

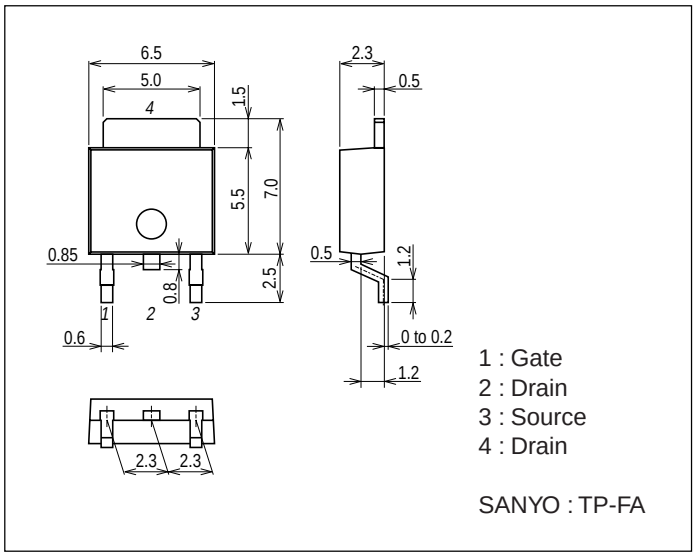
7518-004



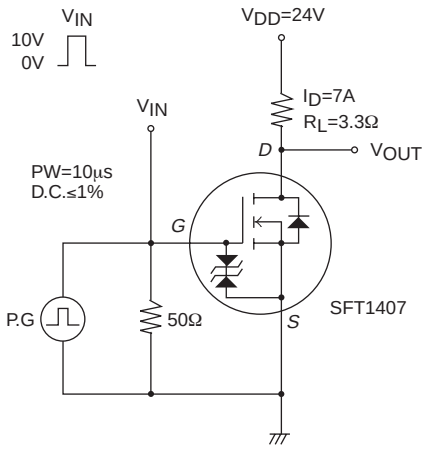
Package Dimensions

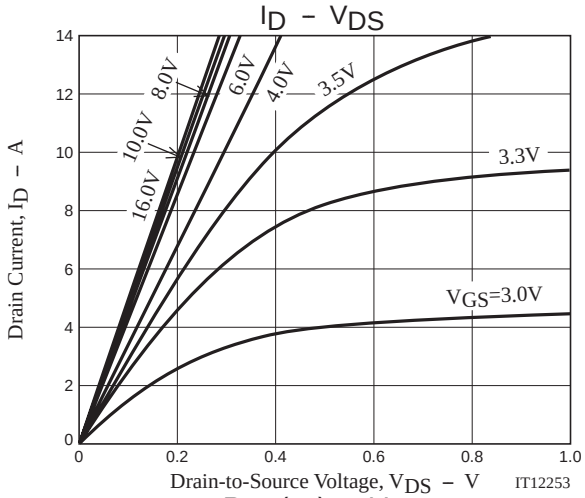
unit : mm(typ)

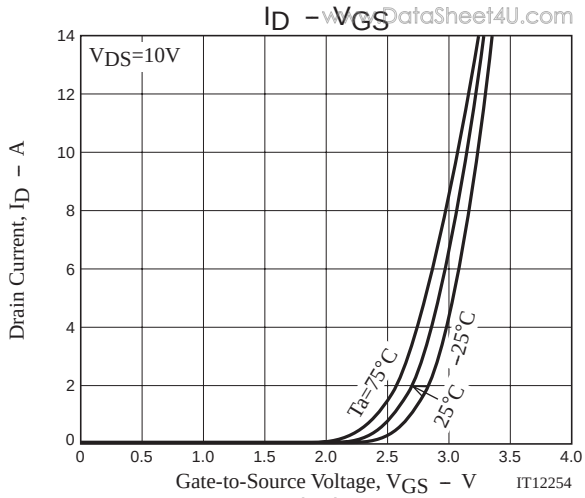
7003-004

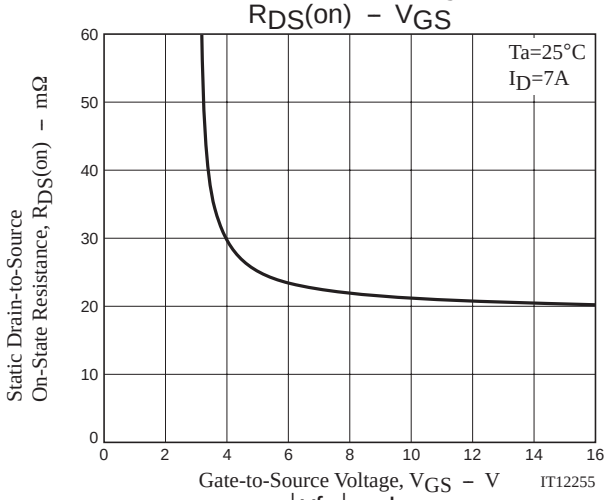


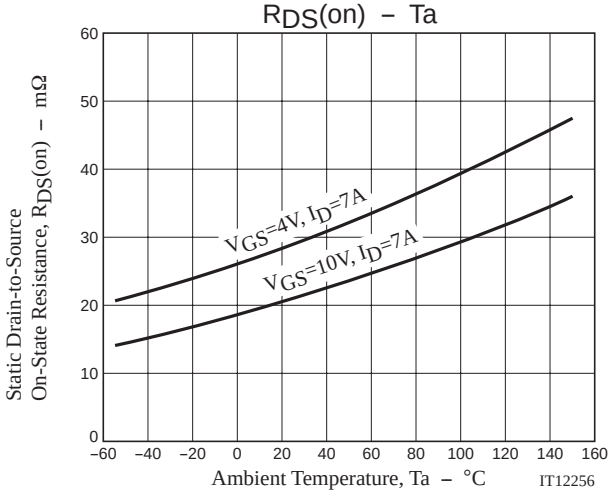
Switching Time Test Circuit

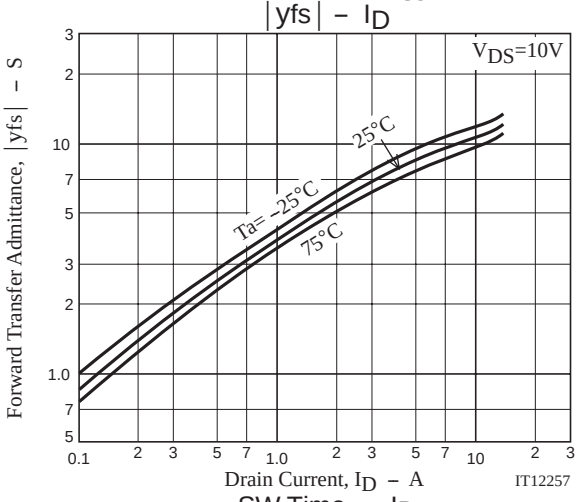


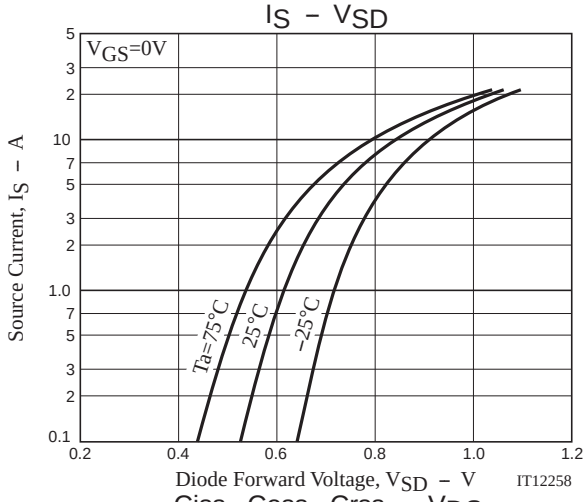


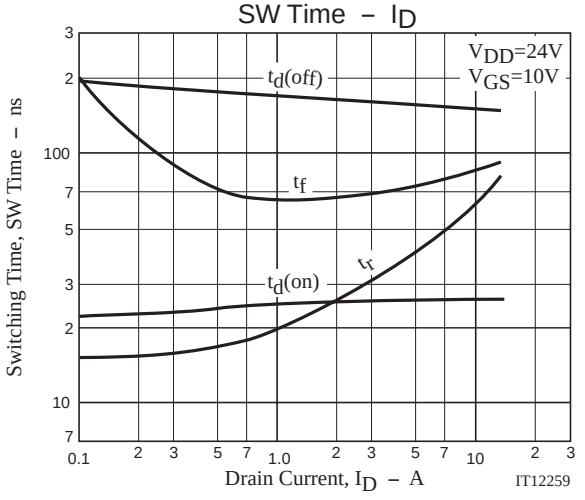


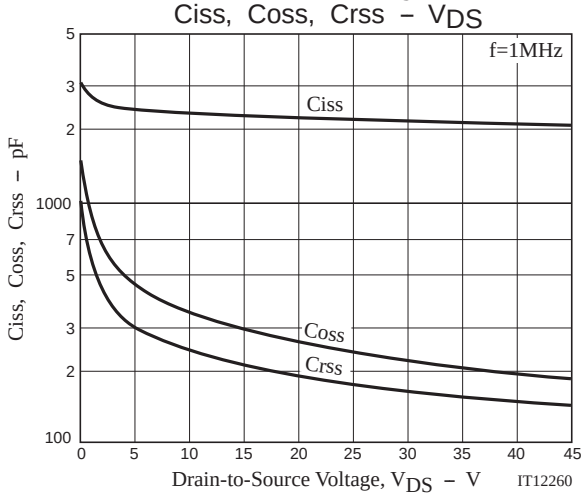


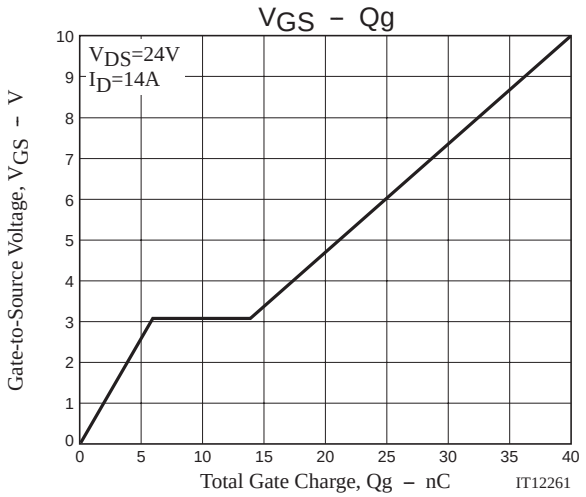


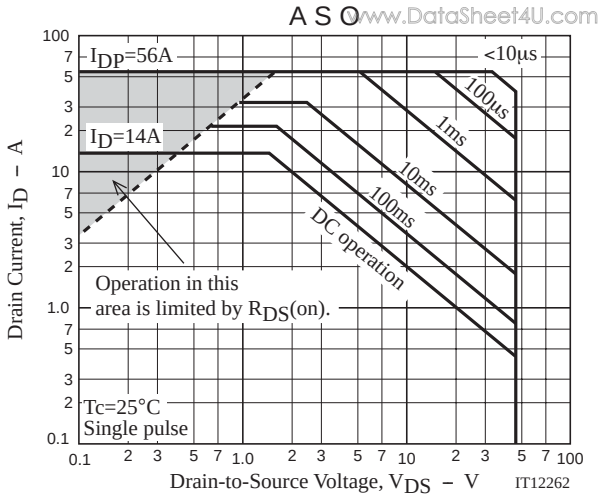


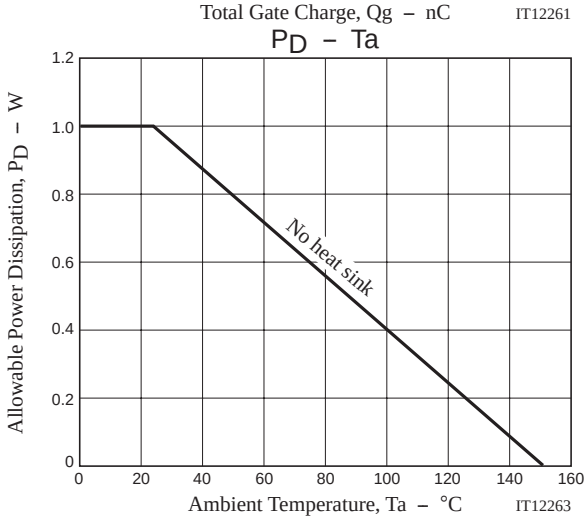


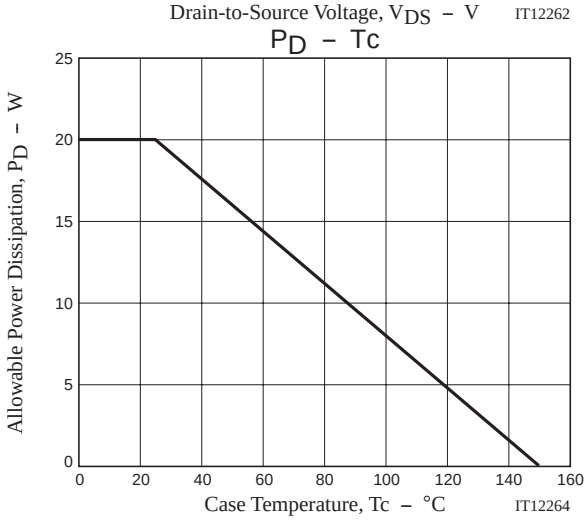












Note on usage : Since the SFT1407 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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