



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

N-Channel Silicon MOSFET

## SFT1446 — General-Purpose Switching Device Applications

### Features

- ON-resistance  $R_{DS(on)} = 39m\Omega$ (typ)
- 4V drive
- Input Capacitance  $C_{iss} = 750pF$ (typ)
- Halogen free compliance

### Specifications

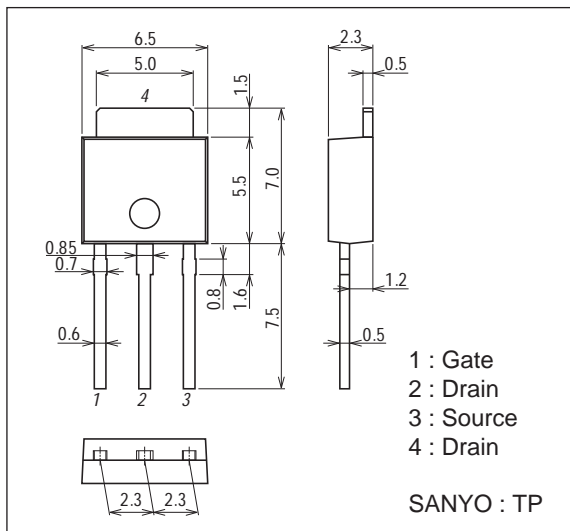
Absolute Maximum Ratings at  $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		60	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 20$	V
Drain Current (DC)	$I_D$		20	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu s$ , duty cycle $\leq 1\%$	80	A
Allowable Power Dissipation	$P_D$		1	W
		$T_c = 25^\circ C$	23	W
Channel Temperature	$T_{ch}$		150	$^\circ C$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ C$

### Package Dimensions

unit : mm (typ)

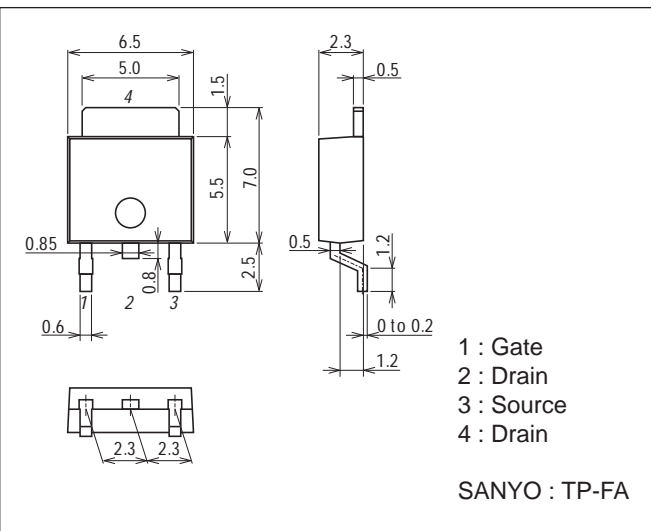
7518-004



### Package Dimensions

unit : mm (typ)

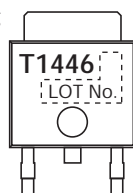
7003-004



### Product & Package Information

- Package : TP
- JEITA, JEDEC : SC-64, TO-251, SOT553
- Minimum Packing Quantity : 500 pcs./bag

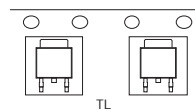
Marking(TP, TP-FA)



### Product & Package Information

- Package : TP-FA
- JEITA, JEDEC : SC-63, TO-252, SOT428
- Minimum Packing Quantity : 700 pcs./reel

Taping Type(TP-FA) : TL



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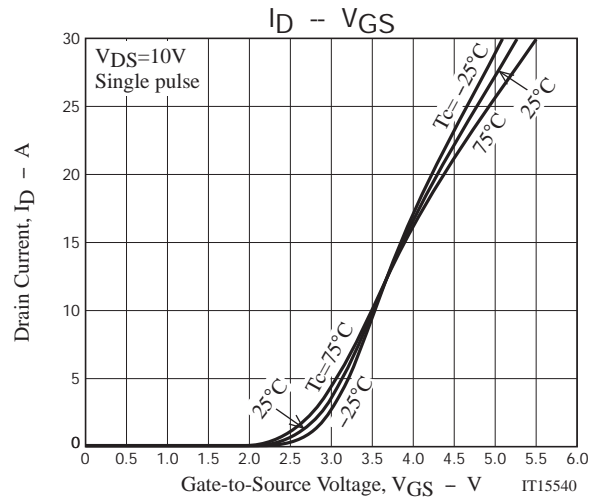
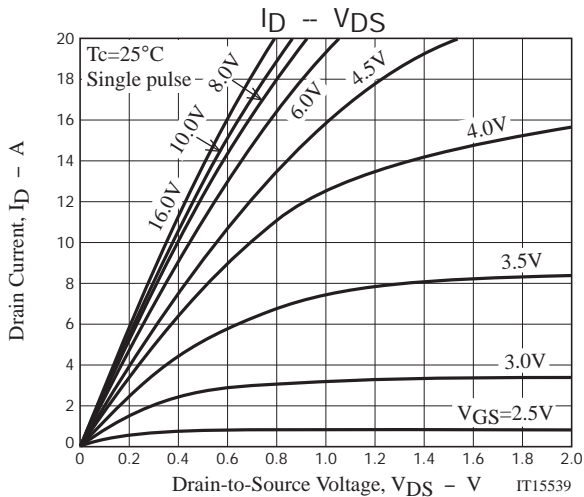
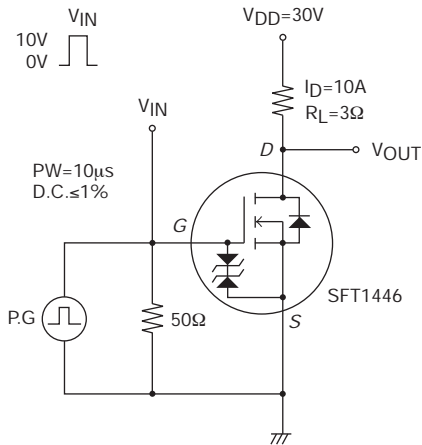
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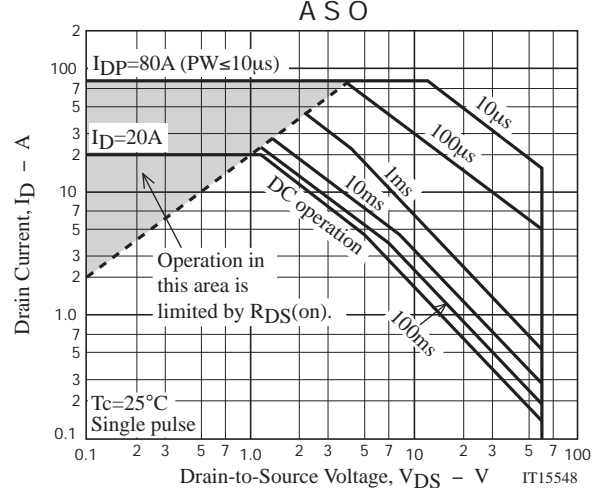
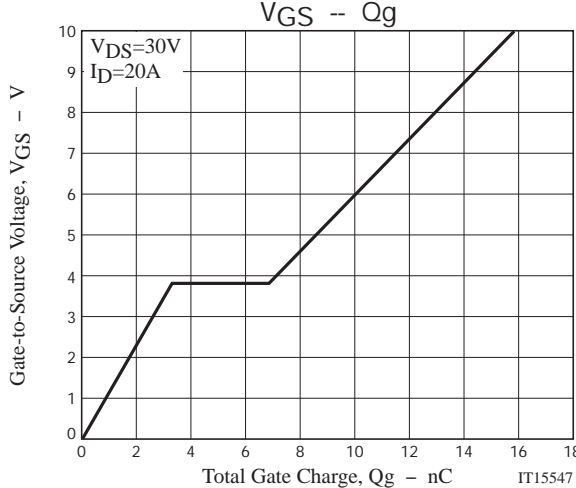
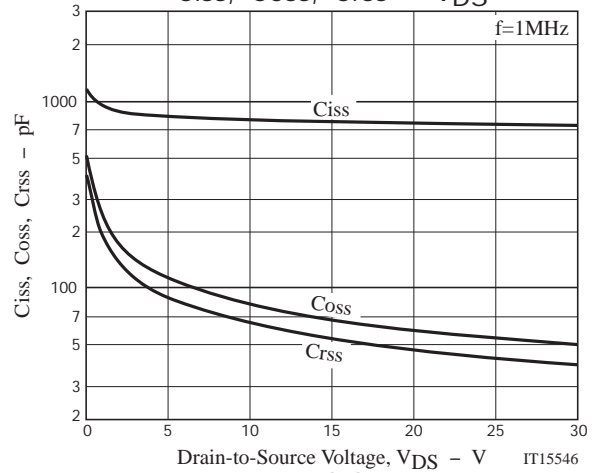
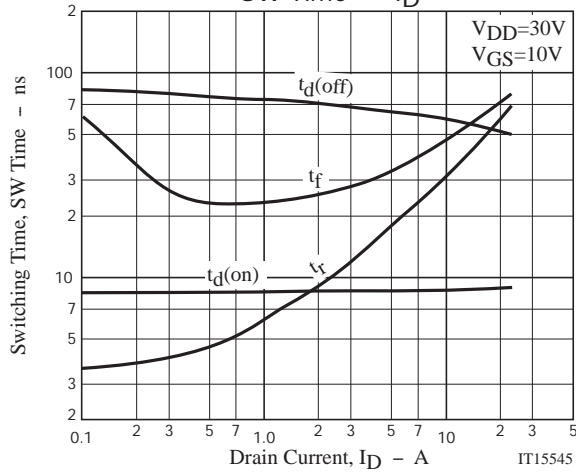
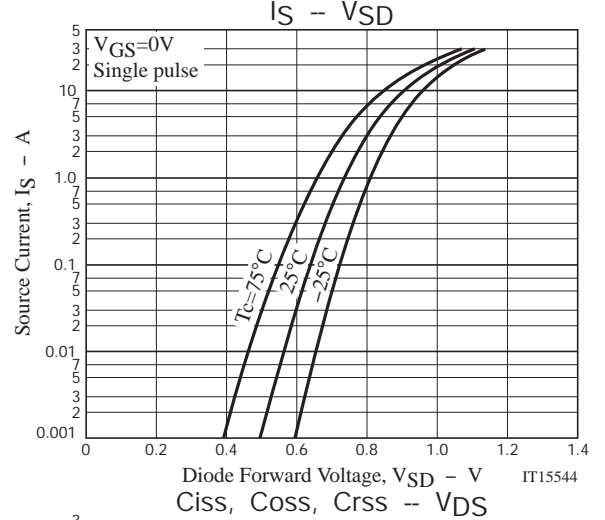
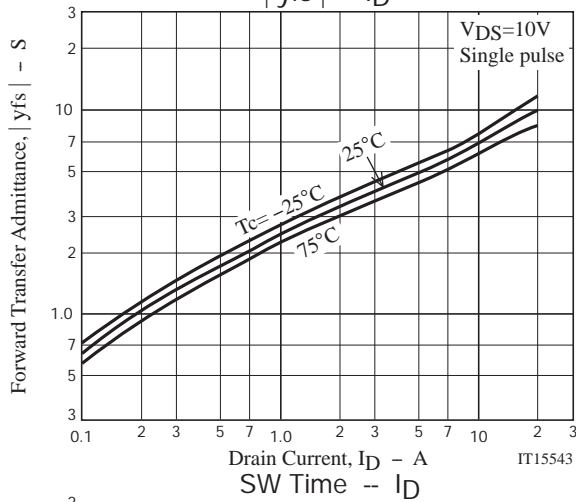
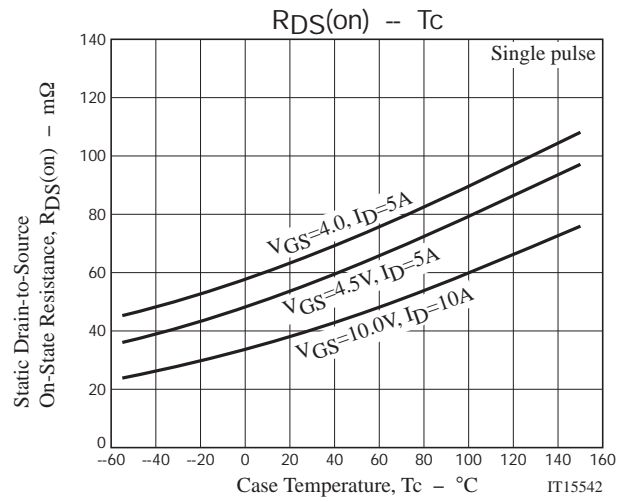
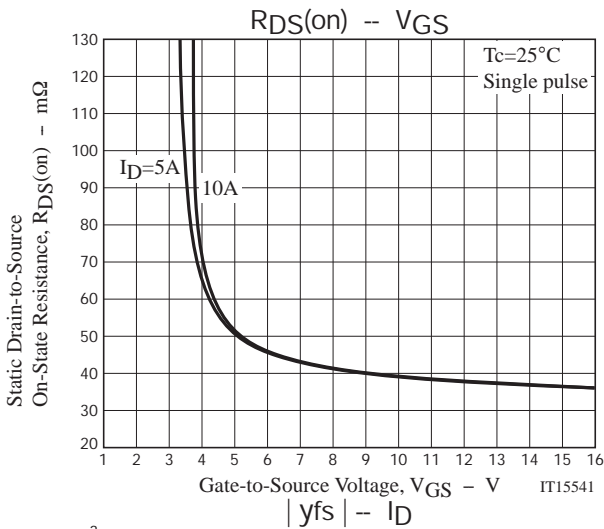
# SFT1446

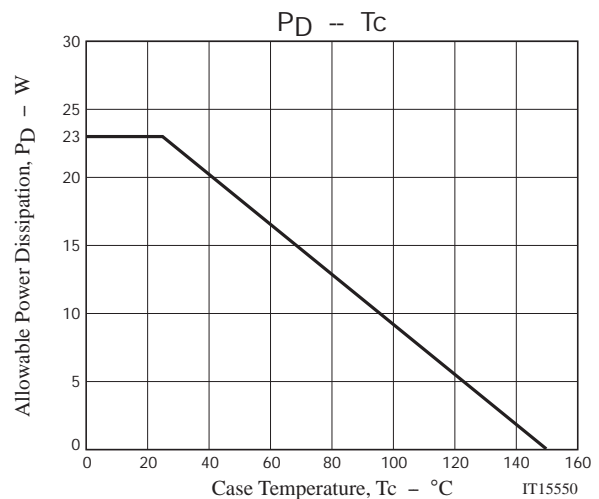
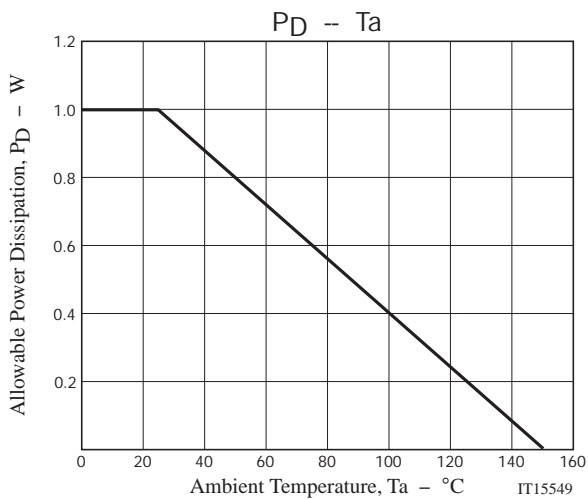
## Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}, V_{GS}=0\text{V}$	60			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=60\text{V}, V_{GS}=0\text{V}$			1	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 16\text{V}, V_{DS}=0\text{V}$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}, I_D=1\text{mA}$	1.2		2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}, I_D=10\text{A}$		7.0		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=10\text{A}, V_{GS}=10\text{V}$		39	51	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=5\text{A}, V_{GS}=4.5\text{V}$		54	76	$\text{m}\Omega$
	$R_{DS(on)3}$	$I_D=5\text{A}, V_{GS}=4\text{V}$		62	87	$\text{m}\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=20\text{V}, f=1\text{MHz}$		750		pF
Output Capacitance	$C_{oss}$	$V_{DS}=20\text{V}, f=1\text{MHz}$		59		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=20\text{V}, f=1\text{MHz}$		47		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		8.5		ns
Rise Time	$t_r$	See specified Test Circuit.		31		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		60		ns
Fall Time	$t_f$	See specified Test Circuit.		48		ns
Total Gate Charge	$Q_g$	$V_{DS}=30\text{V}, V_{GS}=10\text{V}, I_D=14\text{A}$		16		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=30\text{V}, V_{GS}=10\text{V}, I_D=14\text{A}$		3.3		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=30\text{V}, V_{GS}=10\text{V}, I_D=14\text{A}$		3.6		nC
Diode Forward Voltage	$V_{SD}$	$I_S=20\text{A}, V_{GS}=0\text{V}$		1.01	1.2	V

## Switching Time Test Circuit







Note on usage : Since the SFT1446 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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