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SFT1431

Power MOSFET 35V, 25mΩ, 11A, Single N-Channel

Features

- Low On-Resistance
- High Speed Switching
- Low Gate Charge
- ESD Diode-Protected Gate
- Pb-free and RoHS Compliance

Specifications

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

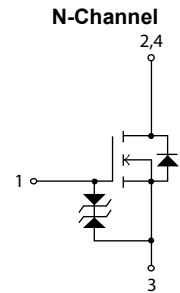
Parameter	Symbol	Value	Unit
Drain to Source Voltage	V_{DS}	35	V
Gate to Source Voltage	V_{GS}	± 20	V
Drain Current (DC)	I_D	11	A
Drain Current $PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	I_{DP}	44	A
Power Dissipation	P_D	1.0	W
		15	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Thermal Resistance Ratings

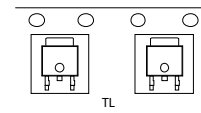
Parameter	Symbol	Value	Unit
Junction to Case Steady State	$R_{\theta JC}$	8.33	$^\circ\text{C/W}$
Junction to Ambient *1	$R_{\theta JA}$	125	

Note : *1 Insertion mounted

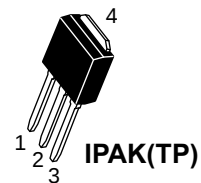
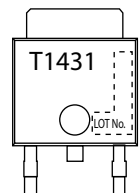
Electrical Connection



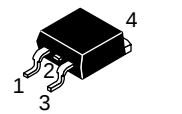
Packing Type: TL



Marking



IPAK(TP)



DPAK(TP-FA)

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

ORDERING INFORMATION

See detailed ordering and shipping information on page 6 of this data sheet.

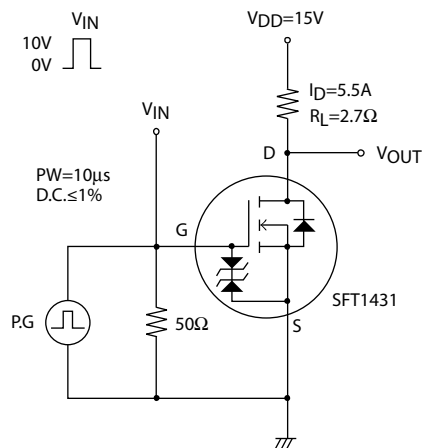
SFT1431

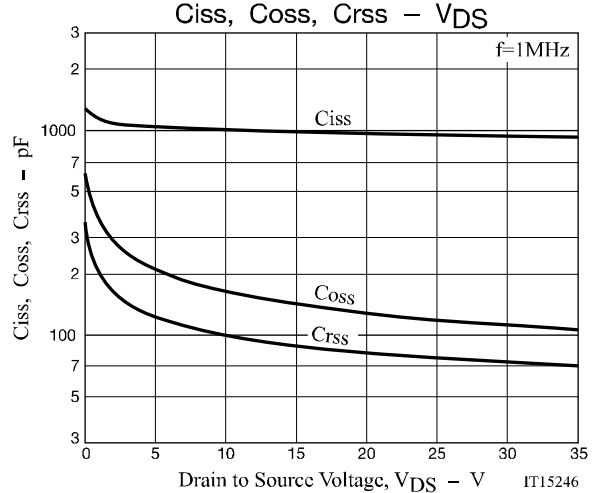
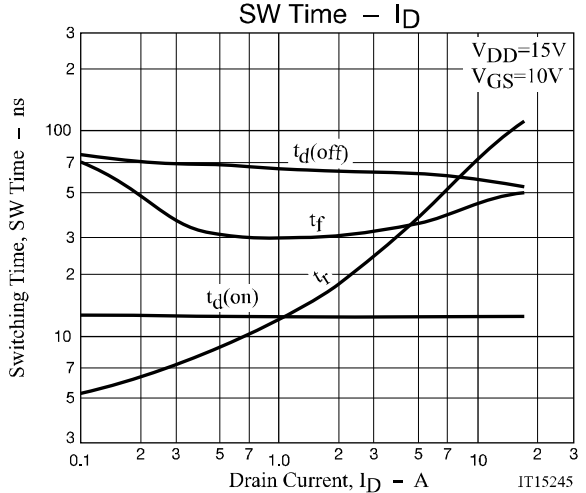
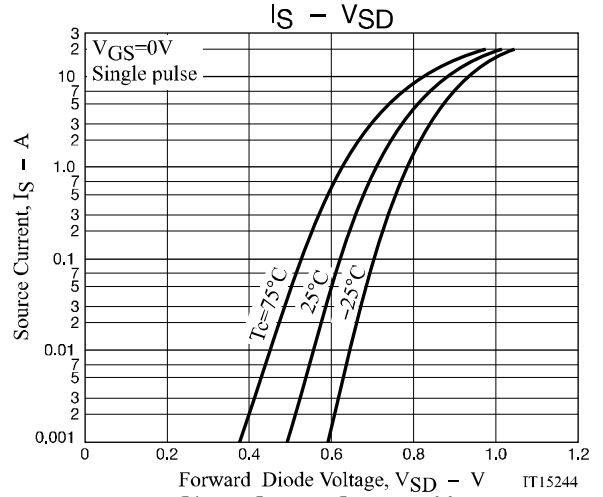
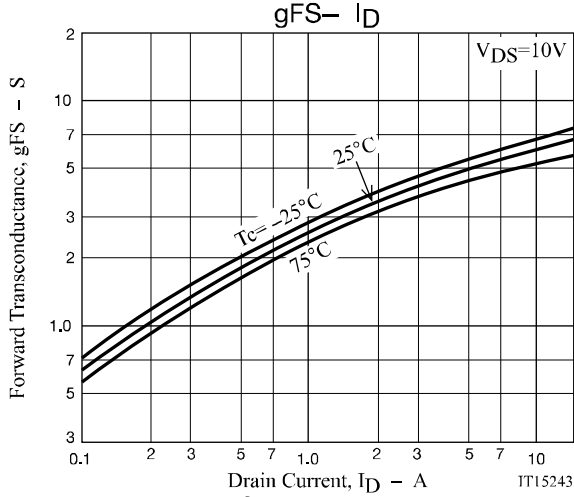
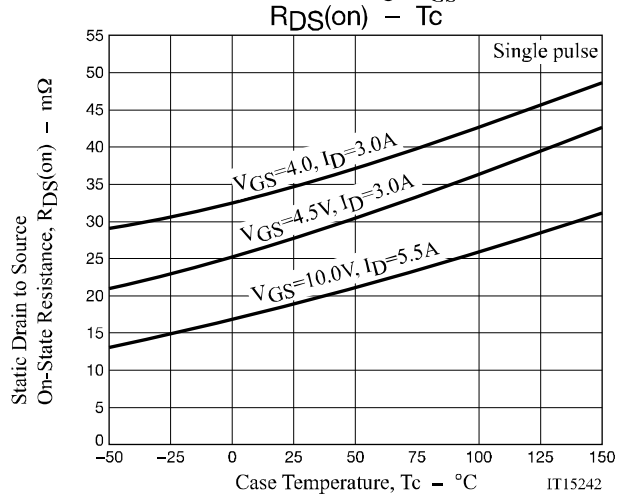
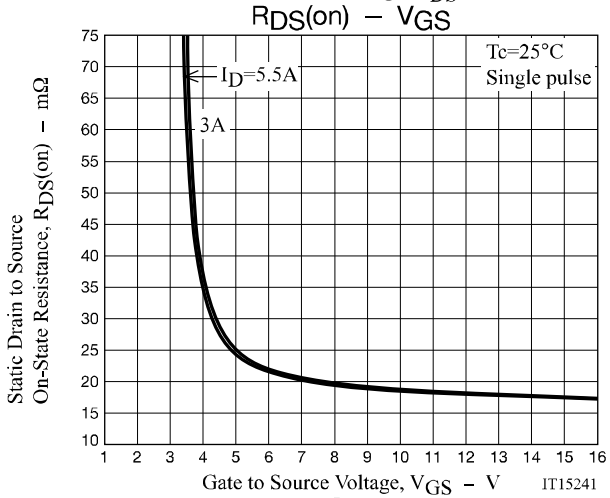
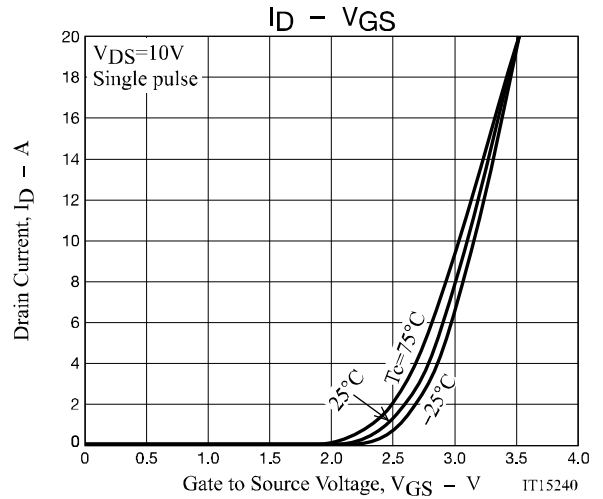
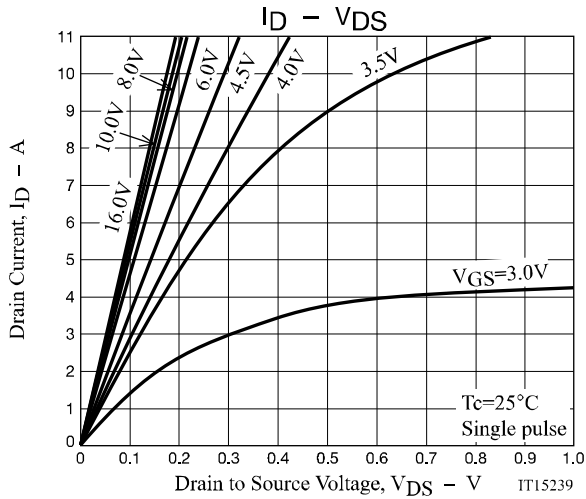
Electrical Characteristics at $T_a = 25^{\circ}\text{C}$

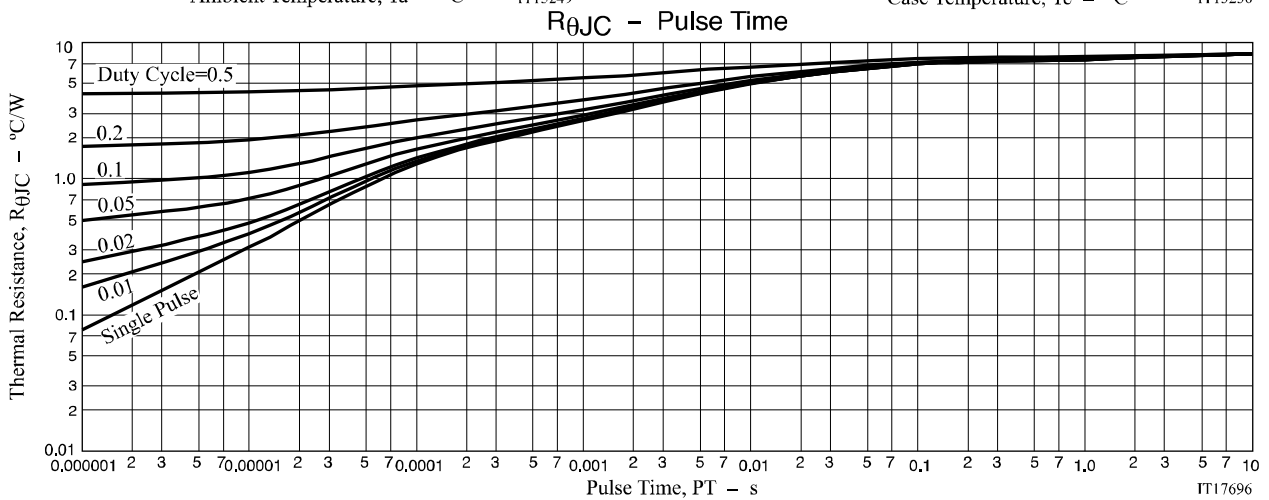
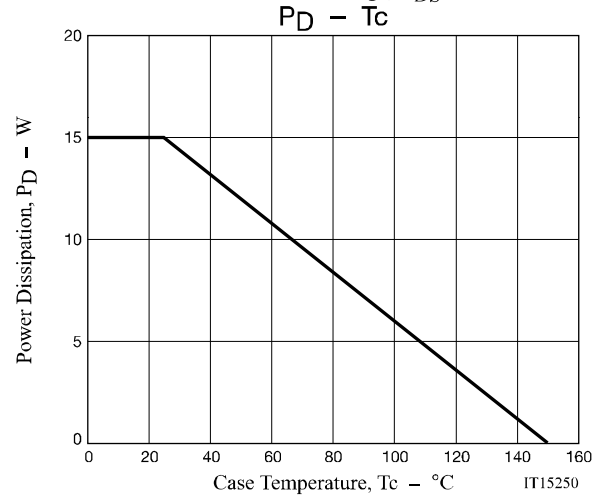
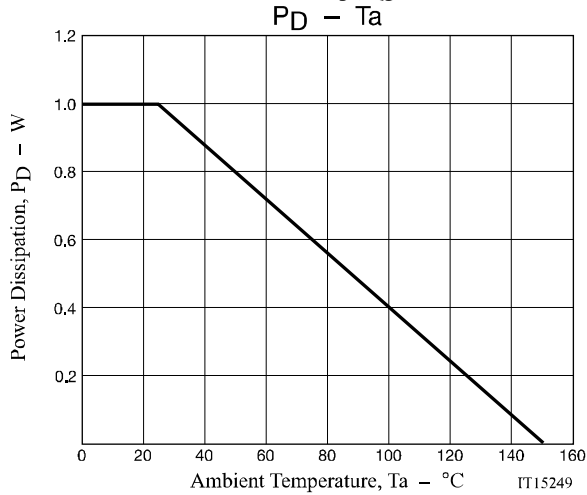
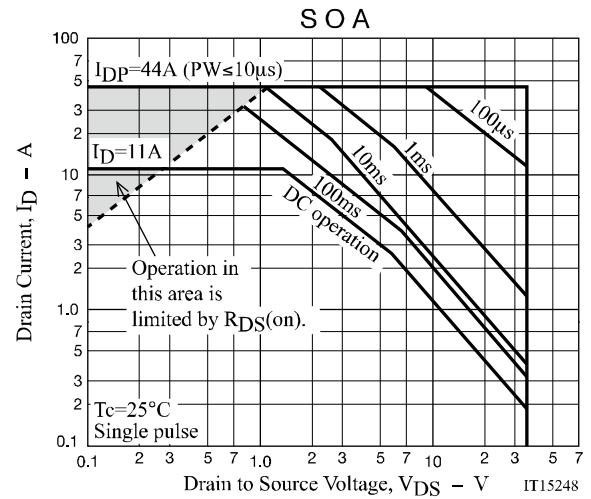
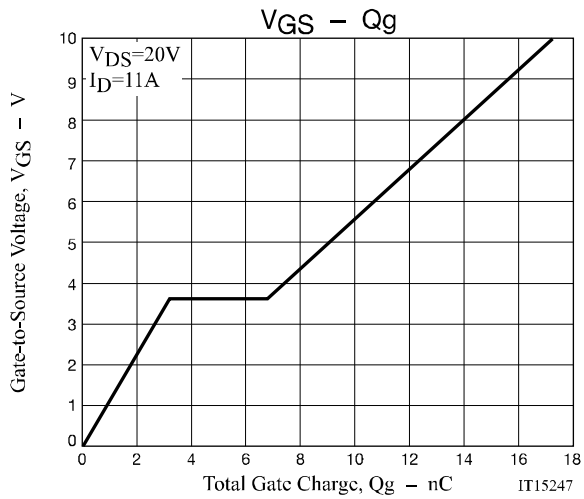
Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}$, $V_{GS}=0\text{V}$	35			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=35\text{V}$, $V_{GS}=0\text{V}$			1	μA
Gate to Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16\text{V}$, $V_{DS}=0\text{V}$			± 10	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=10\text{V}$, $I_D=1\text{mA}$	1.2		2.6	V
Forward Transconductance	g_{FS}	$V_{DS}=10\text{V}$, $I_D=5.5\text{A}$		5		S
Static Drain to Source On-State Resistance	$R_{DS(on)1}$	$I_D=5.5\text{A}$, $V_{GS}=10\text{V}$		19	25	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=3\text{A}$, $V_{GS}=4.5\text{V}$		28	39.5	$\text{m}\Omega$
	$R_{DS(on)3}$	$I_D=3\text{A}$, $V_{GS}=4\text{V}$		35	49	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS}=20\text{V}$, $f=1\text{MHz}$		960		pF
Output Capacitance	C_{oss}			130		pF
Reverse Transfer Capacitance	C_{rss}			84		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		12		ns
Rise Time	t_r			40		ns
Turn-OFF Delay Time	$t_{d(off)}$			60		ns
Fall Time	t_f			36		ns
Total Gate Charge	Q_g	$V_{DS}=20\text{V}$, $V_{GS}=10\text{V}$, $I_D=11\text{A}$		17.3		nC
Gate to Source Charge	Q_{gs}			3.2		nC
Gate to Drain "Miller" Charge	Q_{gd}			3.6		nC
Forward Diode Voltage	V_{SD}	$I_S=11\text{A}$, $V_{GS}=0\text{V}$		0.88	1.2	V

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

Switching Time Test Circuit







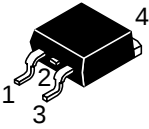
SFT1431

Package Dimensions

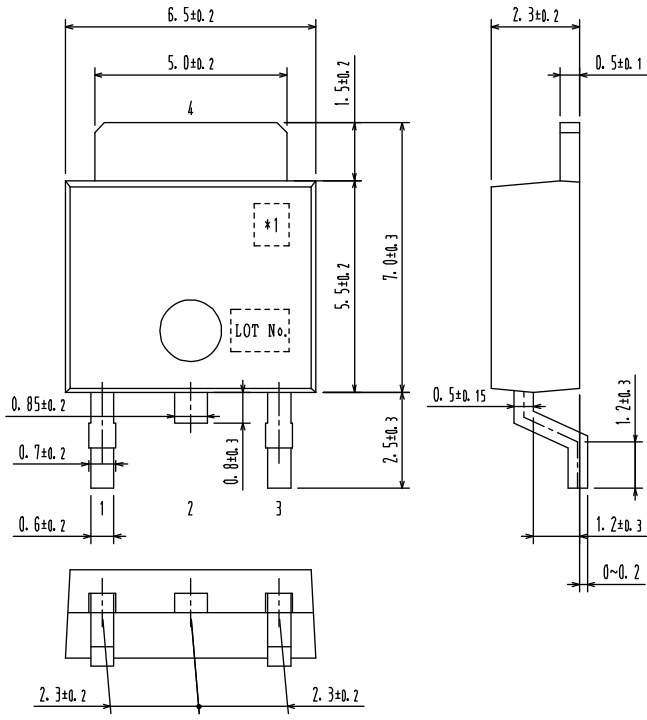
SFT1431-TL-E/ SFT1431-TL-W

DPAK/TP-FA

unit : mm



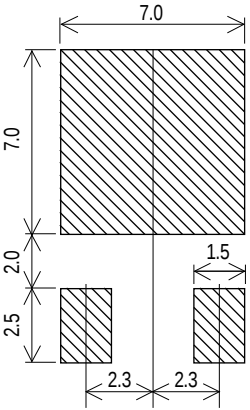
- 1:Gate
- 2:Drain
- 3:Source
- 4:Drain



Pin 2 is idle pin with electrical designation only carried.

*1:Lot indication

Recommended Soldering Footprint

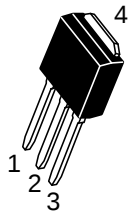


Package Dimensions

SFT1431-E/ SFT1431-W

IPAK/TP

Unit : mm

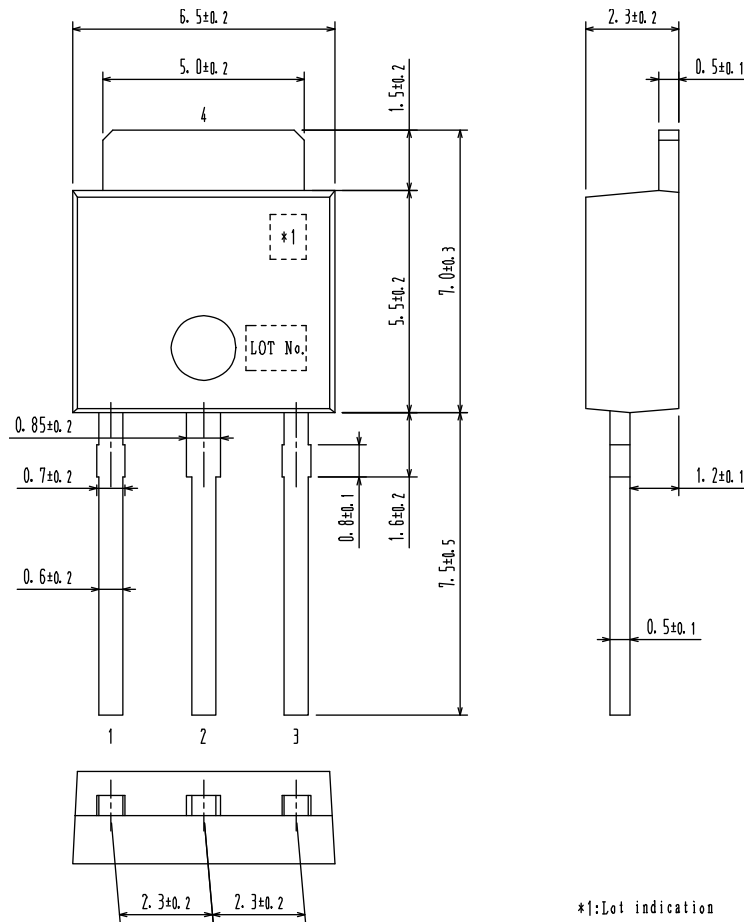


1:Gate

2:Drain

3:Source

4:Drain



Ordering & Package Information

Device	Package	Shipping	Note
SFT1431-E	IPAK(TP) SC-64,TO-251	500pcs. / bag	Pb-Free
SFT1431-W			Pb-Free and Halogen Free
SFT1431-TL-E	DPAK(TP-FA) SC-63,TO-252	700pcs. / reel	Pb-Free
SFT1431-TL-W			Pb-Free and Halogen Free

Note on usage : Since the SFT1431 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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