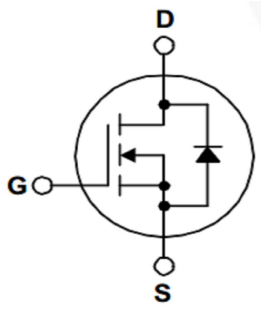
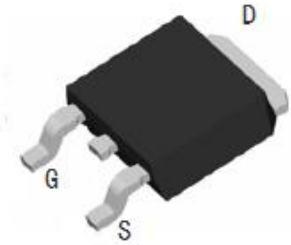
Silicon N-Channel Power MOSFET

Description

The TH830TG uses advanced technology and design to provide excellent $R_{DS(ON)}$. It can be used in a wide variety of applications.





THUNDER TO-252

General Features

- V_{DS}=500V,I_D=5A
- Low ON Resistance
- Low Reverse transfer capacitances
- 100% Single Pulse avalanche energy Test

Application

- Power switching application
- Adapter and charger

Electrical Characteristics @ Ta=25℃ (unless otherwise specified)

a) Absolute Maximum Ratings:

Symbol	Parameter	Value	Unit
V_{DSS}	Drain-to-Source Breakdown Voltage	500	V
I_D	Drain Current (continuous) at Tc=25℃	5	A
I_{DM}	Drain Current (pulsed)	20	A
V_{GS}	Gate to Source Voltage	+/-30	V
P_{tot}	Total Dissipation at Tc=25℃	40	W
	Derating Factor above 25℃	1.5	W/℃
T_j	Max. Operating Junction Temperature	175	℃
E_{AS}	Single Pulse Avalanche Energy	267	mJ

b) Electrical Parameters:

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_{DS}	Drain-source Voltage	V_{GS}=0V, I_D=250μA	500			V
$R_{DS(on)}$	Static Drain-to-Source on-Resistance	V_{GS}=10V, I_D=2.5A		1.3	1.56	Ω
$V_{GS(th)}$	Gated Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	2.0		4.0	V
I_{DSS}	Drain to Source leakage Current	V_{DS}=500V, V_{GS}= 0V			1.0	μA
$I_{GSS(F)}$	Gated to Source Foward Leakage	V_{GS}= +30V			100	nA
$I_{GSS(R)}$	Gated to Source Reverse Leakage	V_{GS}= -30V			-100	nA
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=25V, f=1.0MHZ		560		pF
C_{oss}	Output Capacitance			70		pF
C_{rss}	Reverse Transfer Capacitance			59		pF

c) Switching Characteristics

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=250V,I_D=5A, R_G=10Ω		14		nS
t_r	Turn-on Rise Time			18		nS
$t_{d(off)}$	Turn-off Delay Time			32		nS
t_f	Turn-off Fall Time			11		nS
Q_g	Total Gate Charge	V_{DS}=400V I_D=5A V_{GS}=10V		12.6		nC
Q_{gs}	Gate-Source Charge			3.1		nC
Q_{gd}	Gate-Drain Charge			4.9		nC

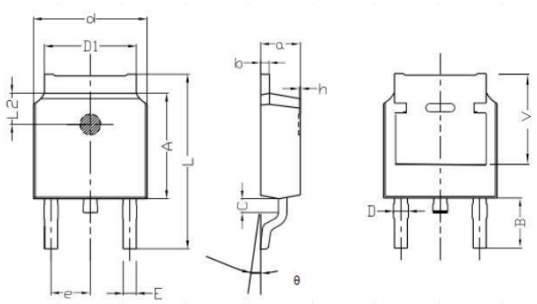
d) Source-Drain Diode Characteristics

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{SD}	S-D Current(Body Diode)				5	A
I_{SDM}	Pulsed S-D Current(Body Diode)				20	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_{DS}=5A			1.5	V
t_{rr}	Reverse Recovery Time	T_J=25℃,I_F=5A di/dt=100A/us		328		nS
Q_{rr}	Reverse Recovery Charge			1.55		μC
	*Pulse Test: Pulse Width <= 300μs, Duty Cycle< =2%					

Symbol	Parameter	Typ.	Unit
$R_{\theta JC}$	Junction-to-Case	3.75	℃/W
$R_{\theta JA}$	Junction-to-Ambient	100	℃/W

Package Information

TO-252 PACKAGE



ITEM	SPEC (mm)	
	MIN	MAX
a	2.15	2.50
b	0.41	0.61
c	0.70	0.90
D	0.6	1.14
d	6.35	6.80
D1	5.10	5.53
A	5.40	6.40
e	2.09	2.49
L	9.25	10.41
B	2.40	3.40
L2	1.5	1.8
θ	0	8
h	0	0.15
V	5.30REF	
E	0.50	0.90

Notice

Thunder Microelectronics Incorporated Limited reserves the right to make changes without further notice to any products or specifications herein. When use the product, be sure to obtain the latest specification.

Thunder Microelectronics Incorporated Limited does not assume any liability arising out of the application or any product described herein. When using Thunder Microelectronics Incorporated Limited products in your equipment, you are requested to take adequate safety measures to prevent the equipment from causing a physical injury ,fire or other problem if any of the products become faulty.

-Headquarters

WuXi Thunder Microelectronics Incorporated Limited

Building E1-9, No.200 LingHu Road, XinWu district,WuXi,China 214135

Tel:+86-510-85160109 Fax:+86-510-85160109