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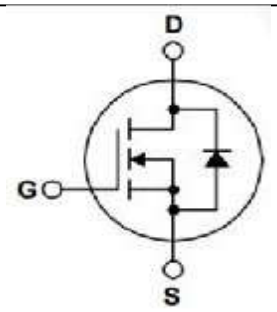
IRF840

Silicon N-Channel Power MOSFET

Description

The IRF840 uses advanced technology and design to provide excellent RDS(ON). It can be used in a wide variety of applications.



TO-220

General Features

① VDS=500V,ID=8A
② Low ON Resistance
③ Low Reverse transfer capacitances
④ 100% Single Pulse avalanche energy Test

Application

① Power switching application
② Adapter and charger

Electrical Characteristics

@ Ta=25℃ (unless otherwise specified)

Absolute Maximum Ratings:

Symbol	Parameter	Value	Units
V_{DSS}	Drain-to-Source Breakdown Voltage	500	V
I_D	Drain Current (continuous) at Tc=25℃	8	A
I_{DM}	Drain Current (pulsed)	32	A
V_{GS}	Gate to Source Voltage	+/-30	V
P_D	Total Power Dissipation Tc=25℃	134	W
T_j	Max. Operating Junction Temperature	175	℃
E_{AS}	Single Pulse Avalanche Energy	320	mJ

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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=6.5A		0.73	0.9	Ω
$V_{GS(th)}$	Gated Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	2.0	3.0	4.0	V
I_{DSS}	Drain to Source leakage Current	V_{DS}=500V, V_{GS} = 0V			10	μA
$I_{GSS(F)}$	Gated Body Foward Leakage	V_{GS} = +30V			0.1	nA
$I_{GSS(R)}$	Gated Body Reverse Leakage	V_{GS} = -30V			-0.1	nA
C_{iss}	Input Capacitance	V_{GS} =0V, V_{DS}=25V, f=1.0MHZ		1570	2040	pF
C_{oss}	Output Capacitance			150	195	pF
C_{rss}	Reverse Transfer Capacitance			15	20	pF

Switching Characteristics

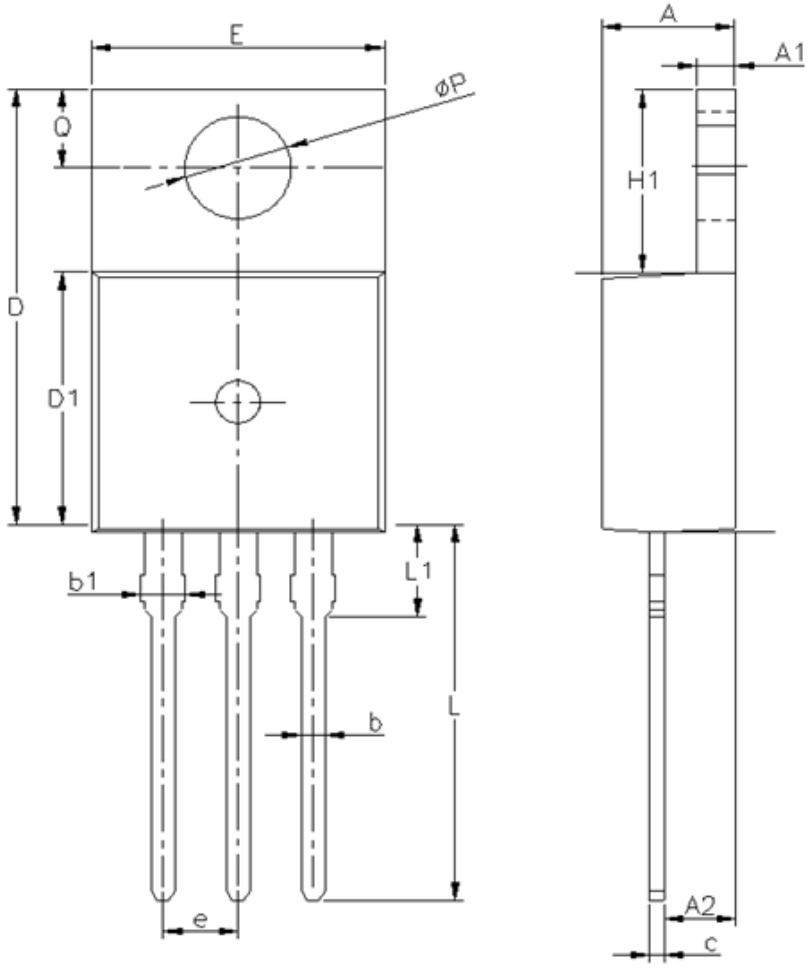
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=250V,I_D=8A, R_G=10Ω		25	60	nS
t_r	Turn-on Rise Time			75	160	nS
$t_{d(off)}$	Turn-off Delay Time			125	260	nS
t_f	Turn-off Fall Time			75	160	nS
Q_g	Total Gate Charge	V_{DS}=400V I_D=8A V_{GS}=10V		25		nC
Q_{gs}	Gate-Source Charge			8		nC
Q_{gd}	Gate-Drain Charge			7		nC

Source-Drain Diode Characteristics

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
I_{SD}	S-D Current(Body Diode)				8	A
I_{SDM}	Pulsed S-D Current(Body Diode)				32	A
V_{SD}	Diode Forward Voltage	V_{GS} =0V, I_{DS}=8A			1.5	V
t_{rr}	Reverse Recovery Time	T_J=25℃,I_F=8A di/dt=100A/us			325	nS
Q_{rr}	Reverse Recovery Charge				1836	μC
	*Pulse Test: Pulse Width <= 300μs, Duty Cycle< =2%					

Symbol	Parameter	Typ	Units
$R_{\theta JC}$	Junction-to-Case	2.5	℃/W

Package Information



SYMBOL	MIN	NOM	MAX
A	4.30	4.50	4.77
A1	1.25	1.27	1.42
A2	1.80	2.50	2.89
b	0.70	0.80	0.96
b1	1.22	1.33	1.50
c	0.33	0.38	0.48
D	15.10	15.70	16.10
D1	8.80	9.15	9.40
E	9.60	10.20	10.40
e	2.54 BSC		
H1	6.10	6.50	7.00
L	12.60	13.10	14.30
L1	—	—	3.50
Q	2.54	—	2.94
ΦP	3.66	3.86	4.06

TO-220EW PACKAGE

NOTE:

1. Exceeding the maximum ratings of the device in performance may cause damage to the device, even the permanent failure, which may affect the dependability of the machine. Please do not exceed the absolute maximum ratings of the device when circuit designing.
2. When installing the heat sink, please pay attention to the torsional moment and the smoothness of the heat sink.
3. MOSFETs is the device which is sensitive to the static electricity, it is necessary to protect the device from being damaged by the static electricity when using it.
4. Shenzhen Minos reserves the right to make changes in this specification sheet and is subject to change withoutprior notice.

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