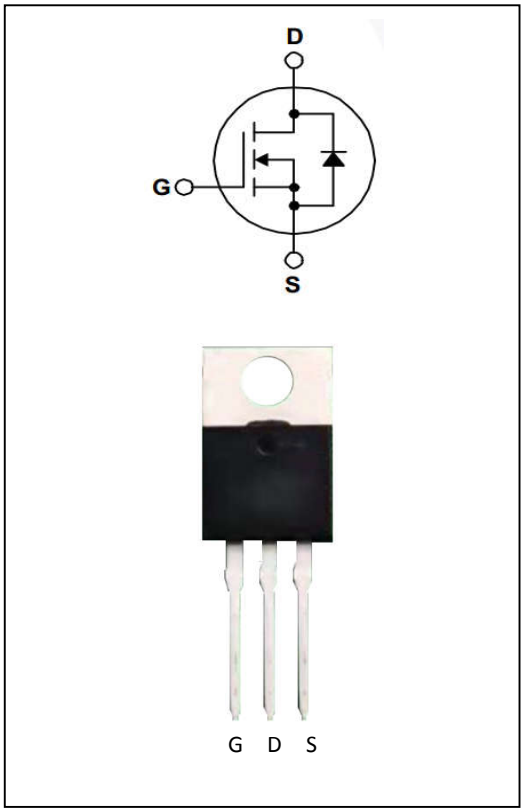
Silicon N-Channel Power MOSFET

Description

The IRFB4227 uses advanced trench technology and design to provide Excellent $R_{DS(ON)}$. It can be used in a wide variety of applications.



General Features

- V_{DS}=200V,I_D=65A

  R_{dson}≦20mΩ @V_{GS}=10V (Typ:20mΩ)

  R_{dson}≦25mΩ @V_{GS}=4.5V (Typ:25mΩ)

- Low ON Resistance
- Low Reverse transfer capacitances
- 100% Single Pulse avalanche energy Test

Application

- Power switching application
- Load switch

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

a) Limited Parameters:

Symbol	Parameter	Value	Units
V_{DSS}	Drain-to-Source Breakdown Voltage	200	V
I_D	Drain Current (continuous) at Tc=25℃	65	A
I_{DM}	Drain Current (pulsed)	300	A
V_{GS}	Gate to Source Voltage	+/-20	V
P_{tot}	Total Dissipation at Tc=25℃	150	W
T_j	Max. Operating Junction Temperature	175	℃
Eas	Single Pulse Avalanche Energy	256	mj

b) Electrical Parameters:

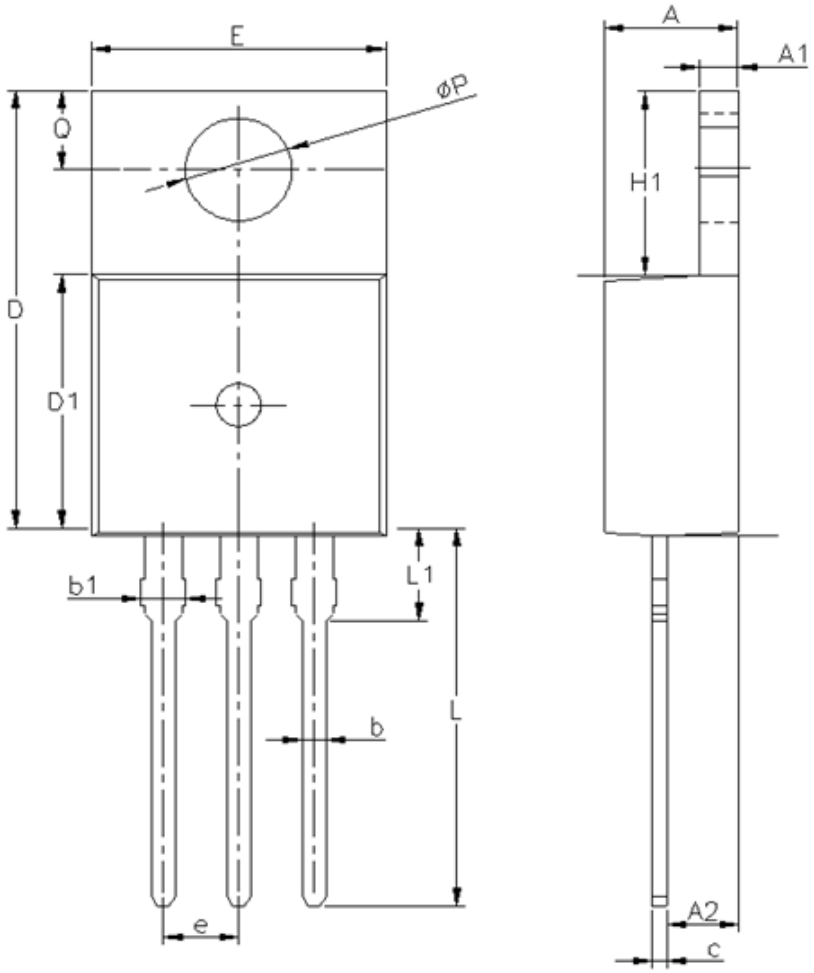
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_{DS}	Drain-source Voltage	V_{GS} =0V, I_D=250μA	200	220		V
$R_{DS(on)}$	Static Drain-to-Source on-Resistance	V_{GS} =10V, I_D=46A		20	25	mΩ
		V_{GS} =4.5V, I_D=46A		25	30	mΩ
$V_{GS(th)}$	Gated Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	3.0	3.9	5.0	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=200V, V_{GS} = 0V			1.0	μA
$I_{GSS(F)}$	Gated Body Leakage Current	V_{GS} = +20V,			100	nA
$I_{GSS(R)}$	Gated Body Leakage Current	V_{GS} = -20V,			-100	nA
C_{iss}	Input Capacitance	V_{GS} =0V, V_{DS}=25V, f=1.0MHZ		2200		pF
C_{oss}	Output Capacitance			225		pF
C_{rss}	Reverse Transfer Capacitance			165		pF
Q_g	Total Gate Charge	V_{DS}=25V I_D=46A V_{GS}=10V		58		nC
Q_{gs}	Gate-Source Charge			6		nC
Q_{gd}	Gate-Drain Charge			15		nC

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=25V,I_D=46A,R_L=0.3Ω V_{GS}=10V,R_G=6.8Ω		20		nS
t_r	Turn-on Rise Time			90		nS
$t_{d(off)}$	Turn-off Delay Time			45		nS
t_f	Turn-off Fall Time			90		nS

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
I_{SD}	S-D Current(Body Diode)			65		A
I_{SDM}	Pulsed S-D Current(Body Diode)			300		A
V_{SD}	Diode Forward Voltage	V_{GS} =0V, I_{DS}=46A			1.4	V
t_{rr}	Reverse Recovery Time	T_J=25℃,I_F=46A di/dt=100A/us		102		nS
Q_{rr}	Reverse Recovery Charge			50		nC
	*Pulse Test: Pulse Width <= 300μs, Duty Cycle< =2%					

Symbol	Paramter	Typ	Units
$R_{\theta JC}$	Junction-to-Case	1.3	℃/W

TO-220EW PACKAGE



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