PSP012N065HR

650V 12A 0.62Ω Si Single N-channel Planar MOSFET

PowerCubeSemi, Inc.
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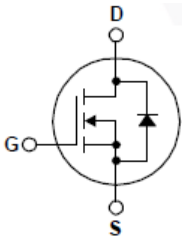
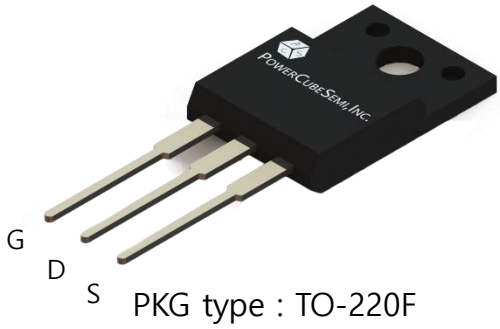
Features

Si Single N-channel Planar MOSFET

- Rated to 650V at 12Amps @T_J = 25℃
- Max $R_{DS(on)}$ = 0.76 Ω
- Typ $R_{DS(on)}$ = 0.62 Ω
- Low Gate Charge(Typ. Q_g=25 nC)
- Low Crss(Typ. Crss=4.2 pF)
- Fast Switching
- 100% Avalanche Tested
- Improved dv/dt capability





PKG type : TO-220F

Absolute Maximum Ratings

Symbol	Parameter	Test Condition	Value	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	650	V
I_D	Drain Current	T_c=25℃	12	A
I_{DM}	Pulsed Drain Current	Pulse width limited by junction temperature	40	A
V_{GS}	Gate-Source Voltage		±30	V
E_{AS}	Single Pulsed Avalanche Energy		480	mJ
P_d	Power Dissipation	T_C=25℃	26	W
T_j	Operating Junction Temperature		-55 to 150	℃
T_{stg}	Storage Temperature		-55 to 150	℃

Package Marking and Ordering Information

Device Marking	Device	Package	Packing Method	Tape width	Quantity
PSP012N065HR	PSP012N065	TO-220F	Tube	-	50 Unit

Electrical Characteristics of Si MOSFET

Symbol	Parameter	Test Condition	Numerical			Unit
			Min	Typ.	Max.	
BV_{DSS}	Drain-source breakdown voltage	V_{GS} = 0V, I_D = 250μA, T_J = 25°C	650	-	-	V
$BV_{DSS}/\Delta T_J$	Breakdown Voltage Temperature Coefficient	I_D = 250μA, Referenced to T_J = 25°C	-	0.62	-	V/℃
I_{DSS}	Zero gate voltage drain current	V_{DS} = 650V, V_{GS} = 0V	-	-	1	μA
I_{GSS}	Gate-source leakage current	V_{GS} = ±30V, V_{DS} = 0V	-	-	±100	nA
$V_{GS(th)}$	Gate threshold voltage	V_{DS} = V_{GS}, I_D = 250μA	2	-	4	V
$R_{DS(ON)}$	Static drain-source on state resistance	V_{GS} = 10V, I_D = 5A	-	0.62	0.76	Ω
g_{FS}	Forward Transconductance	V_{DS} = 40V, I_D = 5A	-	12	-	S
$t_{d(on)}$	Turn-on Delay time	V_{DS} = 335V, I_D = 10A, R_G = 25Ω	-	14	-	ns
T_r	Turn-on Rise time		-	28	-	
$t_{d(off)}$	Turn-off Delay time		-	62	-	
T_f	Turn-off Fall time		-	35	-	

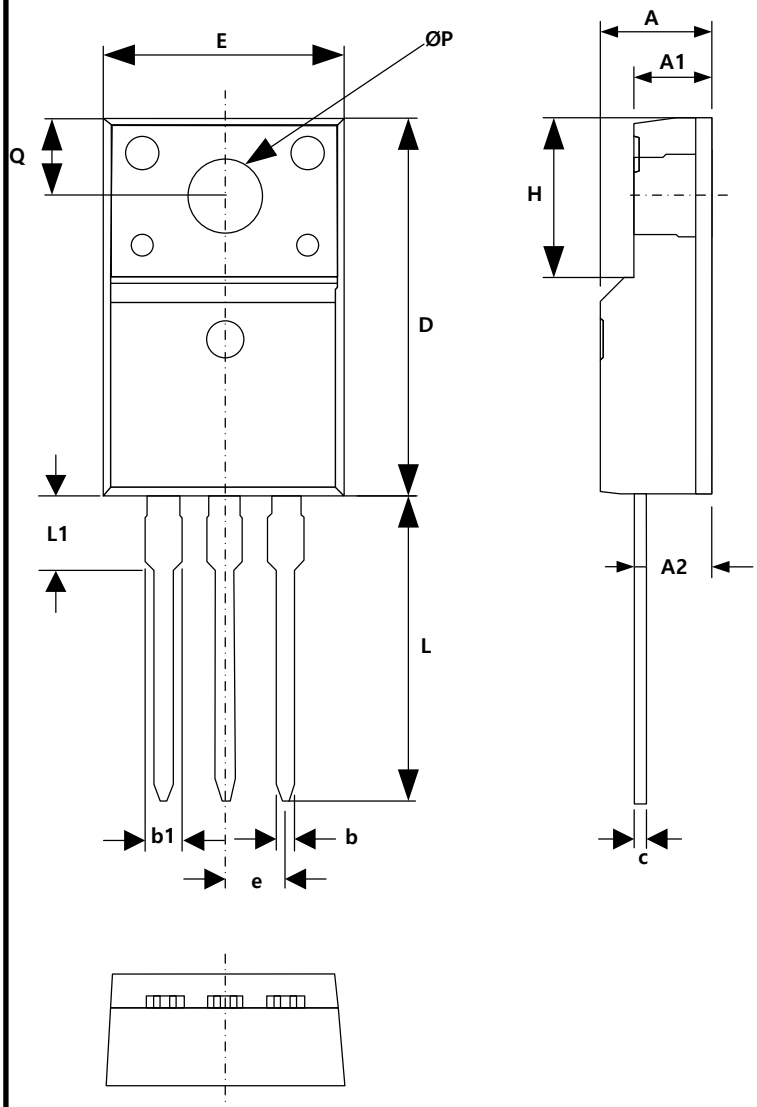
Electrical Characteristics of Si MOSFET

Symbol	Parameter	Test Condition	Numerical		Unit
			Typ.	Max.	
$R_{\theta JC}$	Thermal resistance, Junction to case		4.58	-	℃/W
C_{iss}	Input capacitance	V_{DS} = 25V, V_{GS} = 0V, f = 1.0MHz	1187	-	pF
C_{oss}	Output capacitance		165	-	
C_{rss}	Reverse transfer capacitance		4.2	-	
$Q_{g(tot)}$	Total gate charge	V_{DS} = 536, I_D = 10A $V_{GS(on)}$ = 10V	25	-	nC
Q_{gs}	Gate to source gate charge		5.2	-	
Q_{gd}	Gate to drain "Miller" charge		9.8	-	

Electrical Characteristics of Si Diode

Symbol	Parameter	Test Condition	Numerical		Unit
			Typ.	Max.	
I_S	Maximum continuous drain to source diode forward current		-	10	A
I_{SM}	Maximum pulsed drain to source diode forward current		-	40	A
V_{SD}	Drain to source diode forward voltage	I_S = 10A, V_{GS} = 0V	-	1.2	V
T_{rr}	Reverse recovery time	V_{GS} = 0V, I_S = 10A, dI_F/dt=100A/㎲	383	-	ns
Q_{rr}	Reverse recovery charge		3.2	-	μC

Package Outline



[Unit : mm]

SYMBOL	DIMENSIONS		NOTES
	MIN	MAX	
A	4.50	4.90	
A1	2.34	2.74	
A2	2.56	2.96	
b	0.70	0.90	
b1	1.27	1.47	
c	0.45	0.60	
D	15.67	16.07	
E	9.96	10.36	
e	2.54 BSC		
H	6.48	6.88	
L	12.68	13.28	
L1	3.03	3.43	
ϕP	3.08	3.28	
Q	3.20	3.40	