

120mΩ, 650V, Super Junction N-Channel Power MOSFET

General Description

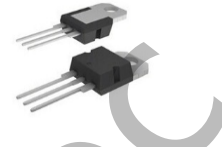
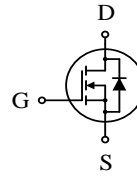
The ID65R120F is a high voltage super junction power MOSFET, which provides 650V breakdown voltage and 120mΩ on-state resistance. Benefited from the optimized technology, ID65R120F can achieve the low on-resistance and lower gate charge. Also considering the ultra-fast body diode performance, the ID65R120F is particular suitable for the fast switching, higher efficiency and higher reliability applications.

The ID65R120F is available in TO-220-3L package.

Features

- 650V break down voltage
- Ultra Low $R_{DS(ON)} = 120m\Omega @ V_{GS} = 10V$.
- Ultra Low Gate Charge, $Q_g = 38nC$ typ.
- Low Q_{rr} and Reduced switching losses
- Robust design with better Eas performance

Package/Order Information



Order code	Package
ID65R120FCA-A1	TO-220-3L

Applications

- Telecom power, Server power
- Motor driver
- EV Charger
- High Power Application

Maximum Ratings

Symbol	Parameter	Value	Unit
V_{DSS}	Drain-Source Voltage	650	V
V_{GSS}	Gate-Source Voltage (Static)	± 20	V
V_{GSS}	Gate-Source Voltage (Dynamic), AC ($f > 1$ Hz)	± 30	V
I_D	Continuous Drain Current ($T_C = 25^\circ C$)	22	A
	Continuous Drain Current ($T_C = 125^\circ C$)	10	A
I_{DM}	Pulsed Drain Current ^{Note 2}	66	A
E_{AS}	Avalanche Energy, Single Pulse ^{Note 3}	108	mJ
E_{AR}	Avalanche Current, Repetitive ^{Note 2}	0.25	mJ
I_{AR}	Avalanche Current, Repetitive ^{Note 2}	1.9	A
I_S	Continuous Diode Forward Current	22	A
$I_{S,PULSE}$	Diode Pulse Current	66	A
dv/dt	MOSFET dv/dt Ruggedness, $V_{DS} \leq 480V$	80	V/ns
dv/dt	Reverse Diode dv/dt, $V_{DS} \leq 480V$, $I_{SD} \leq I_D$	50	V/ns
P_{tot}	Power Dissipation ($T_C = 25^\circ C$)	134	W
T_J	Operating Junction Temperature	150	$^\circ C$
T_S	Storage temperature	-55~150	$^\circ C$
T_{LEAD}	Lead Temperature (Soldering, 10 sec)	260	$^\circ C$

Note:

1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.
2. Repetitive Rating: Pulse width limited by maximum junction temperature.
3. $L = 1mH$, $I_{AS} = 14.5A$, $V_{DS} = 60V$, $R_G = 25\Omega$, Starting $T_J = 25^\circ C$.