

DFN2020-6L Plastic-Encapsulate MOSFETS

Features

- VDS=30V
- ID=10A
- RDS(on)@VGS=4.5V < 16mΩ
- RDS(on)@VGS=2.5V < 20mΩ
- RDS(on)@VGS=1.8V < 39mΩ
- Low Thermal Impedance
- Low Gate Charge
- ESD Protected Gate

Applications

- DC-DC Converters
- Load Switch

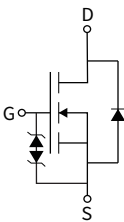
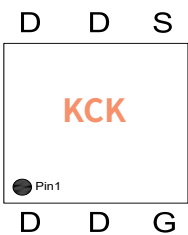
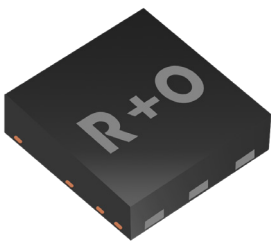
Mechanical Data

- Case: DFN2020-6L
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant,halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

Function Diagram

Drain-source Voltage
30V
Drain Current
10 Ampere

DFN2020-6L



Ordering Information

PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
DFN2020-6L	R3	0.01	3000	30000	90000	7"

Maximum Ratings (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	VALUE
Drain-source Voltage	VDS	V	30
Gate-source Voltage	VGS	V	±8
Drain Current ⁽¹⁾	ID	A	10
Pulsed Drain Current ⁽²⁾	IDM	A	40
Total Power Dissipation	PD	W	2
Avalanche Energy	EAS	mJ	20
ESD Protected Up to	ESD(HBM)	kV	2
Junction temperature	TJ	°C	-55 ~+150
Storage temperature	Tstg	°C	-55 ~+150
Thermal Resistance Junction-to-Ambient ⁽²⁾	RθJA	°C / W	62.5

● Static Parameter Characteristics (Tj=25°C Unless otherwise specified)

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D =250μA	V	30	—	—
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V	μA	—	—	1.0
Gate-Body Leakage Current	I _{GSS}	V _{GS} = ±8V, V _{DS} =0V	μA	—	—	±10
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =250μA	V	0.45	0.8	1.0
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} = 4.5V, I _D =6A	mΩ	—	11	16
		V _{GS} = 2.5V, I _D =6A		—	13	20
		V _{GS} = 1.8V, I _D =6A		—	21	39

● Dynamic Parameters

PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f=1MHz	pF	—	1613	—
Output Capacitance	C _{oss}			—	102	—
Reverse Transfer Capacitance	C _{rss}			—	88	—

● Switching Parameters

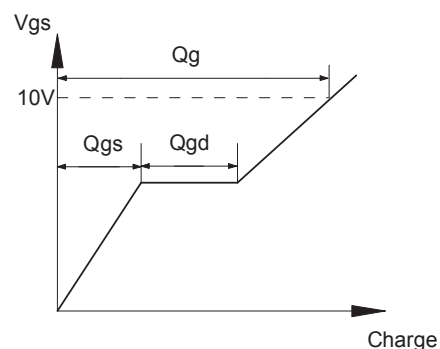
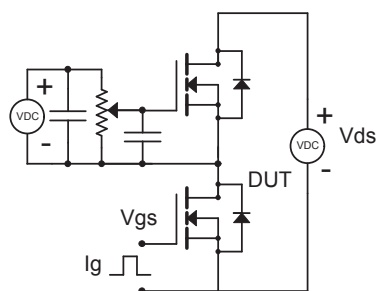
PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Turn-on Delay Time	t _{D(on)}	V _{GS} =4.5V, V _{DD} =15V, I _D =8A, R _{GEN} =3Ω	nS	—	3	—
Turn-on Rise Time	t _r		nS	—	3	—
Turn-off Delay Time	t _{D(off)}		nS	—	26	—
Turn-off fall Time	t _f		nS	—	3.5	—
Total Gate Charge	Q _g	V _{DS} =15V, I _D =8A V _{GS} =4.5V	nC	—	20	—
Gate-Source Charge	Q _{gs}		nC	—	3.8	—
Gate-Drain Charge	Q _{gd}		nC	—	5.3	—

● Drian-Source Diode Characteristics

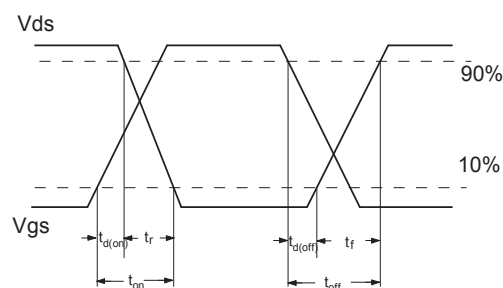
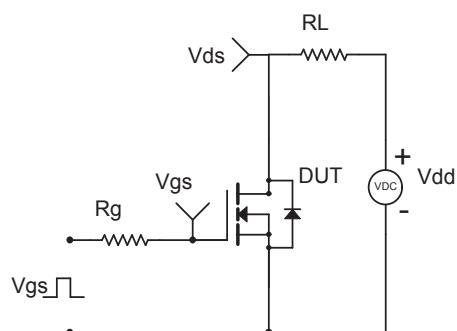
PARAMETER	SYMBOL	Condition	UNIT	Min	Typ	Max
Diode Forward Voltage	V _{SD}	I _S =10A, V _{GS} =0V	V	—	—	1.2
Maximum Body-Diode Continuous Current	I _S	—	A	—	—	10

Note :
(1)Pulse width limited by maximum junction temperature .
(2)Surface-mounted on FR-4 board using the minimum recommended pad size.
(3)EAS condition:Tj=25°C ,VDD=-15V,VG=-4.5V,L=0.1mH,IAS=-20A,Rg=25Ω.

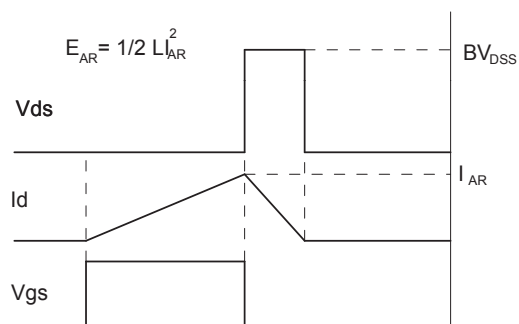
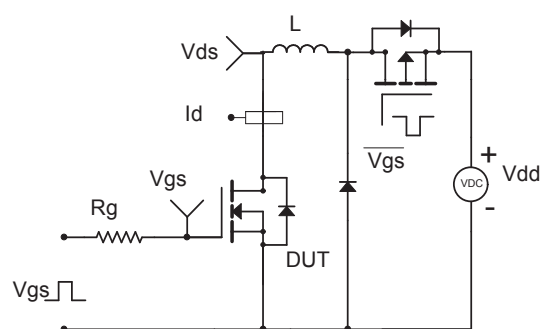
1. Gate Charge Test Circuit & Waveforms



2. Resistive Switching Test Circuit & Waveforms



3. Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



4. Diode Recovery Test Circuit & Waveforms

