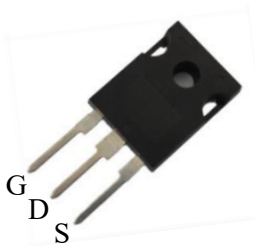
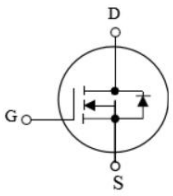
60R099HSZF

MOSFET

●DESRCRIPTION:

The 60R099HSZF is an N-channel MOSFET designed to have better characteristics, such as Smart design in high voltage technology,Fast switching,Ultra low gate charge, Periodic avalanche rated,Extreme dv/dt rated,Low reverse recovery charge。





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●ABSOLUTE MAX I MUM RATINGS(TC = 25°C, unless otherwise specified)

Symbol	Parameter		Value	Unit
V_{DS}	Drain-Source Voltage		600	V
V_{GS}	Gate-Source Voltage		±30	V
I_D	Continuous Drain Current	TC = 25℃	36	A
		TC = 100℃	22. 8	
I_{DM}	Pulsed Drain Current		108	A
Ptot	Power Dissipation	TO-247	278	W
T_j	Junction Temperature		150	℃
T_{stg}	Operation and Storage Temperature		-55 to +150	℃
E_{AS}	Avalanche Energy		1000	mJ

●ELECTRICAL CHARACTERISTICS (TC = 25°C, unless otherwise specified)

Symbol	Parameter	Test Condition	Value			Unit
			Min	Type	Max	
BV_{DSS}	Drain-Source Breakdown Voltage	VGS= 0V, ID= 1mA	600			V
I_{DSS}	Drain-Source Leakage Current	VDS=600V ,VGS=0V			1	uA
I_{GSS}	Gate-Source Leakage Current	VGS= ±30V			±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	VDS= VGS,ID= 2.1mA	2.5		4.5	V
$R_{DS(ON)}$	Static Drain-Source On-State Resistance	VGS= 10V， ID= 15.3A		85	99	mΩ

Symbol	Parameter	Test Condition	Value			Unit
			Min	Type	Max	
C_{iss}	Input Capacitance	V_{GS}=0V，V_{DS}=50V, f= 100KHz		3918		pF
C_{oss}	Output Capacitance			204		
C_{rss}	Reverse Transfer Capacitance			9		
Q_g	Total Gate Charge	V_{DS}= 400V V_{GS}= 10V I_D= 20A		67		nC
Q_{gs}	Gate-Source Charge			17		
Q_{gd}	Gate-Drain Charge			29		
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=400V，V_{GS}= 10V I_D=20A，R_G=2Ω，		49		nS
T_r	Turn-On Rise Time			77		
$T_{d(off)}$	Turn-Off Delay Time			91		
T_f	Turn-Off Fall Time			4.6		
I_{SD}	Maximum Continuous Drain-Source Diode Forward Current				36	A
I_{SM}	Maximum Pulsed Drain-Source Diode，Forward Current				108	A
V_{SD}	Drain-Source Diode Forward Voltage	Is=36A,V_{GS}=0V			1.4	V
trr	Reverse Recovery Time	If=20A,di/dt=100A/uS		147		nS
Q_{rr}	Reverse Recovery Charge			1		uC

Note：
1) Calculated continuous current based on maximum allowable junction temperature.
2) Repetitive rating; pulse width limited by max. junction temperature.
3) Pd is based on max. junction temperature, using junction-case thermal resistance.
4) The value of RθJA is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with Ta=25 °C.
5) VDD=100 V, VGS=10 V, L=60 mH, starting Tj=25 °C.

● THERMAL CHARACTERISTIC

Symbol	Parameter	Value		Unit
R_{thjc}	Thermal Resistance, Junction to Case	MAX	TO-247	℃/W
			0.45	

ELECTRICAL CHARACTERISTICS (CURVES)

60R099HSZF

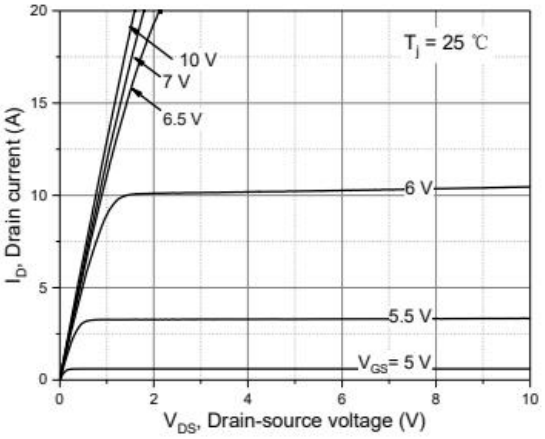

Figure 1. Typ. output characteristics

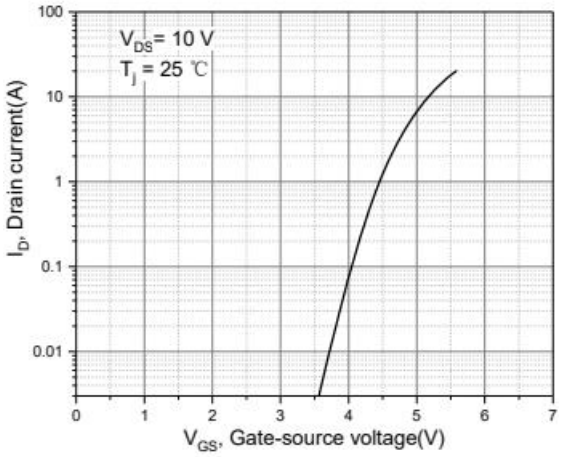

Figure 2. Typ. transfer characteristics

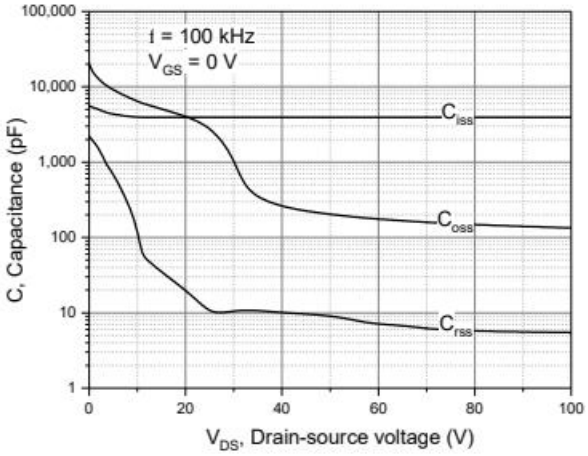

Figure 3. Typ. capacitances

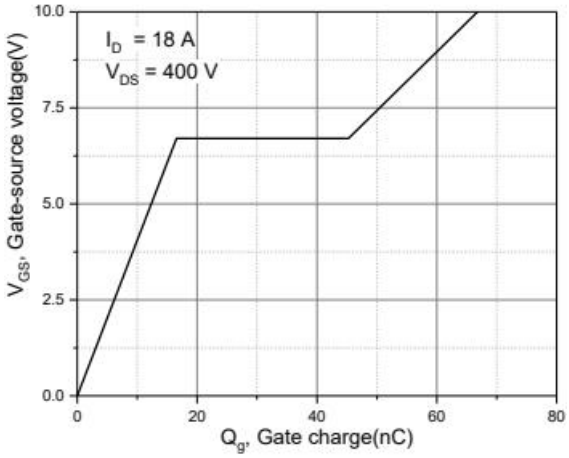

Figure 4. Typ. gate charge

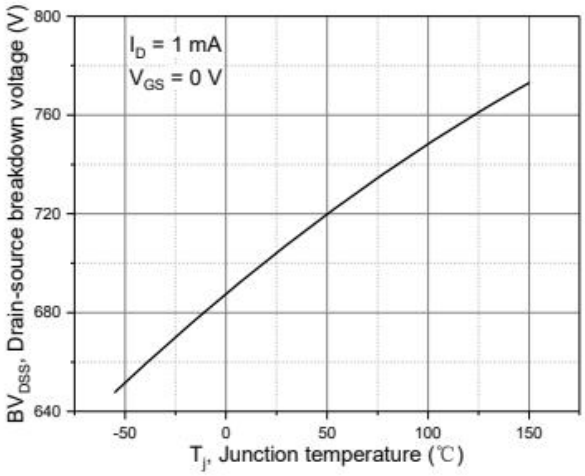

Figure 5. Drain-source breakdown voltage

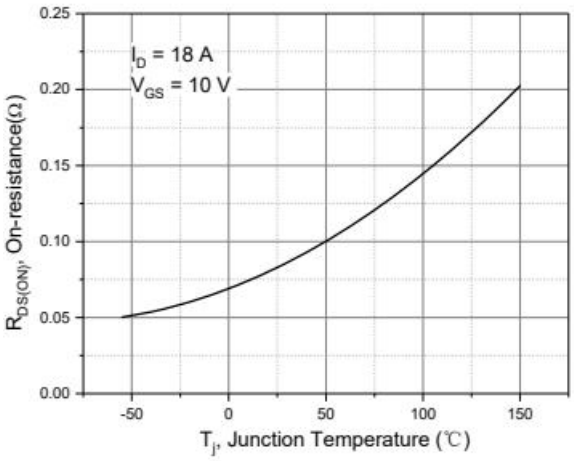

Figure 6. Drain-source on-state resistance

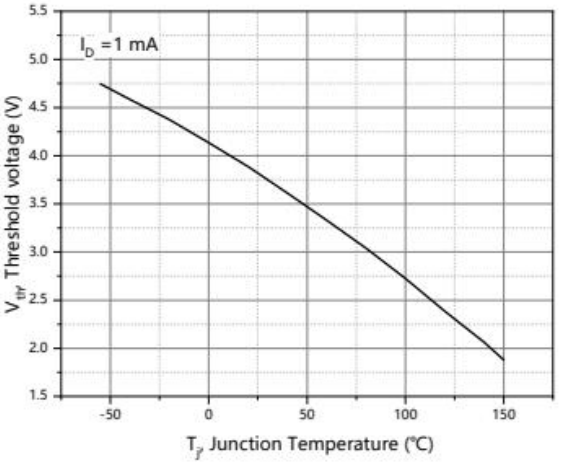

Figure 7. Threshold voltage

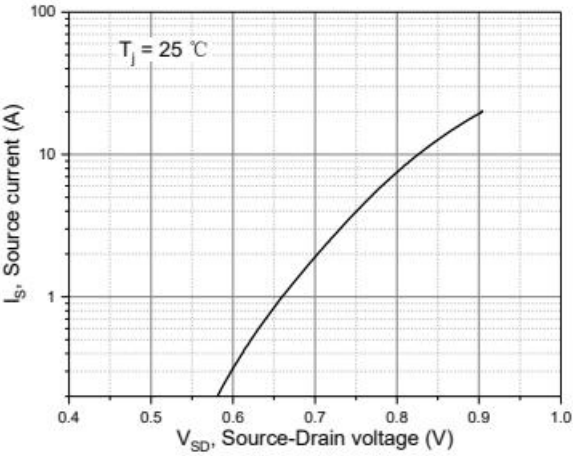

Figure 8. Forward characteristic of body diode

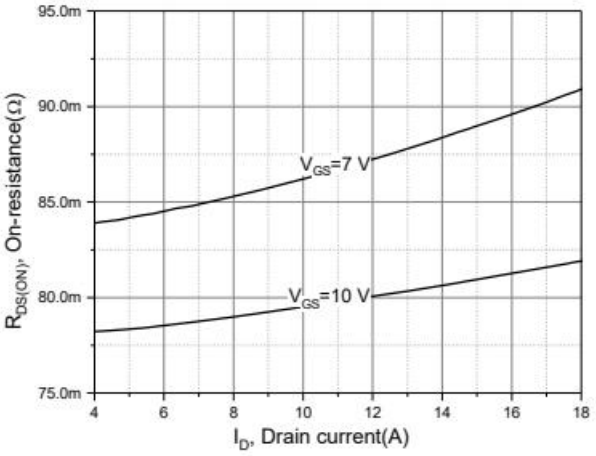

Figure 9. Drain-source on-state resistance

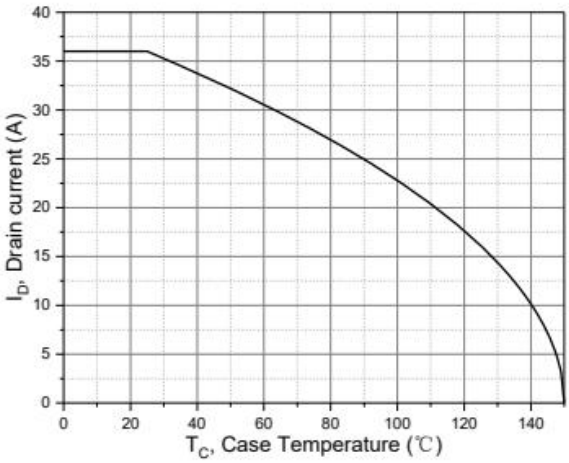

Figure 10. Drain current

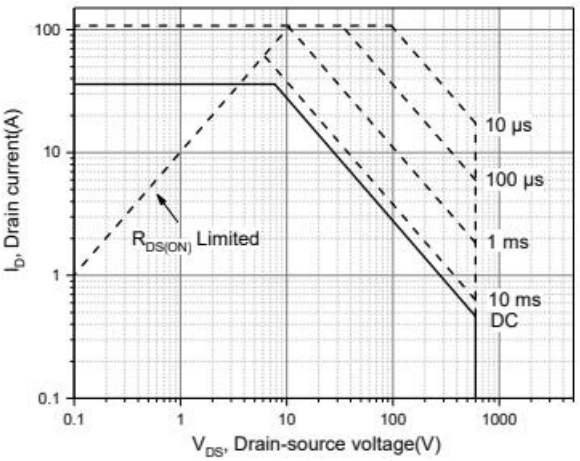

Figure 11. Safe operation area for TC=25 ℃

●PACKAGE MECHANICAL DATA

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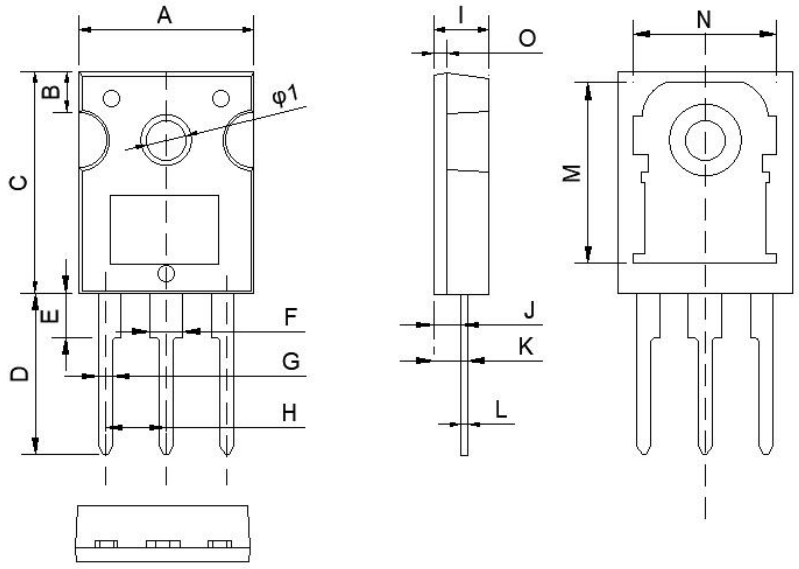

Symbol	Millimeter		Inches	
	Min	Max	Min	Max
A	15.5	16.5	0.610	0.650
B	3	3.6	0.118	0.142
C	19.5	20.5	0.768	0.807
D	14	15	0.551	0.591
E	3.8	4.3	0.150	0.169
F	2.8	3.4	0.110	0.134
G	1.1	1.4	0.043	0.055
H	5.32	5.58	0.209	0.220
I	4.9	5.1	0.193	0.201
J	2.2	2.6	0.087	0.102
K	3.05	3.15	0.120	0.124
L	0.49	0.56	0.019	0.022
M	16	16.4	0.630	0.646
N	13.2	13.8	0.520	0.543
O	1.1	1.4	0.043	0.055
φ1	3.56	3.76	0.140	0.148