Isc N-Channel MOSFET Transistor   MS4N1350

• FEATURES
• With TO-3PML package
• Low input capacitance and gate charge
• Low gate input resistance
• 100% avalanche tested
• Minimum Lot-to-Lot variations for robust device
 performance and reliable operation

• APPLICATIONS
• Switching applications
• Load switch
• Power management

pin 1.Gate
2.Drain
3.Source
TO-3PML package

• ABSOLUTE MAXIMUM RATINGS(TC=25℃)

SYMBOL	PARAMETER	VALUE	UNIT
V_{DSS}	Drain-Source Voltage	1500	V
V_{GSS}	Gate-Source Voltage	±30	V
I_D	Drain Current-ContinuousTc=25℃	4	A
I_{DM}	Drain Current-Single Pulsed	10	A
P_D	Total Dissipation @T_C=25℃	140	W
Tj	Max. Operating Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55~150	℃

• THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
Rth(ch-c)	Channel-to-case thermal resistance	2.0	℃/W
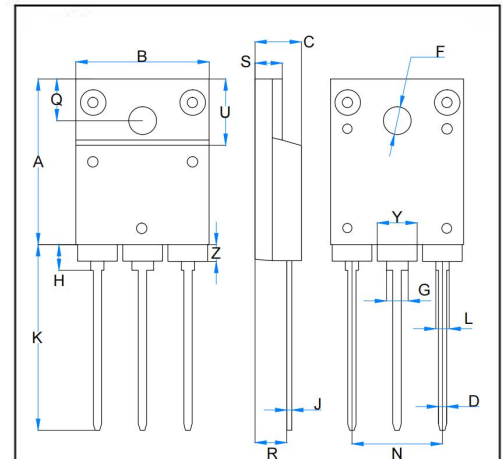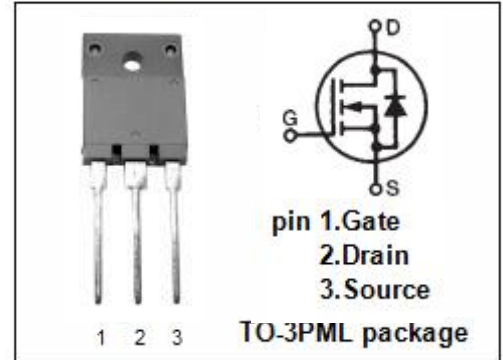
DIM	mm	
	Min	Max
A	19.90	20.10
B	15.75	16.10
C	5.50	5.70
D	0.90	1.10
F	3.30	3.50
G	2.60±0.05	
H	2.70±0.05	
J	0.60	0.70
K	21.10	22.50
L	1.60±0.05	
N	10.80	11.00
Q	4.90	5.10
R	3.75	3.95
S	3.20	3.60
U	9.90	10.10
Y	4.20	4.90
Z	1.90	2.10

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ELECTRICAL CHARACTERISTICS

T_C=25℃ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	Typ	MAX	UNIT
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V; I_D= 1mA	1500	--	--	V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}; I_D= 0.25mA	3.0	--	6.0	V
$R_{DS(on)}$	Drain-Source On-Resistance	V_{GS}= 10V; I_D= 1.3 A	--	--	9	Ω
I_{GSS}	Gate-Source Leakage Current	V_{GS}= ±30V;V_{DS}= 0V	--	--	±100	nA
I_{DSS}	Drain-Source Leakage Current	V_{DS}= 1500V; V_{GS}= 0V;	--	--	10	μA

DYNAMIC CHARACTERISTICS

Ciss	Input Capacitance	V_{GS}=0V, V_{DS}=25V, f=1.0MHZ	--	1600	--	pF
Crss	Reverse Transfer Capacitance		--	33	--	
Coss	Output Capacitance		--	100	--	
Rg	Gate input resistance	f=1 MHz Gate DC Bias=0 Test signal level=20mV open drain	--	4.5	--	Ω
Qg	Total Gate Charge	V_{DD}=750V, I_D=3A, V_{GS}=0 to 10V	--	36	--	nC
Qgs	Gate-to-Source Charge		--	9.5	--	
Qgd	Gate-to-Drain (Miller) Charge		--	12	--	

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RESISTIVE SWITCHING CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	MIN	Typ	MAX	UNIT
td(ON)	Turn-on Delay Time	V_{DD}=750V, I_D=3A, V_{GS}=10V Rg=4.7Ω	--	25	--	ns
tr	Rise Time		--	48	--	
td(OFF)	Turn-Off Delay Time		--	57	--	
tf	Fall Time		--	52	--	

SOURCE-DRAIN BODY DIODE CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	MIN	Typ	MAX	UNIT
I_{SD}	Continuous Source Current	Integral pn-diode in MOSFET	--	--	4	A
I_{SM}	Pulsed Source Current		--	--	10	
V_{SD}	Diode Forward Voltage	I_{SD}= 4A, V_{GS} = 0 V	--	--	1.63	V
trr	Reverse Recovery Time	V_{GS}=0V IF=4 A, di/dt=100A/μs	--	255	--	ns
Qrr	Reverse Recovery Charge		--	1.1	--	uC

TYPICAL CHARACTERISTICS

Figure 1. Maximum Transient Thermal Impedance
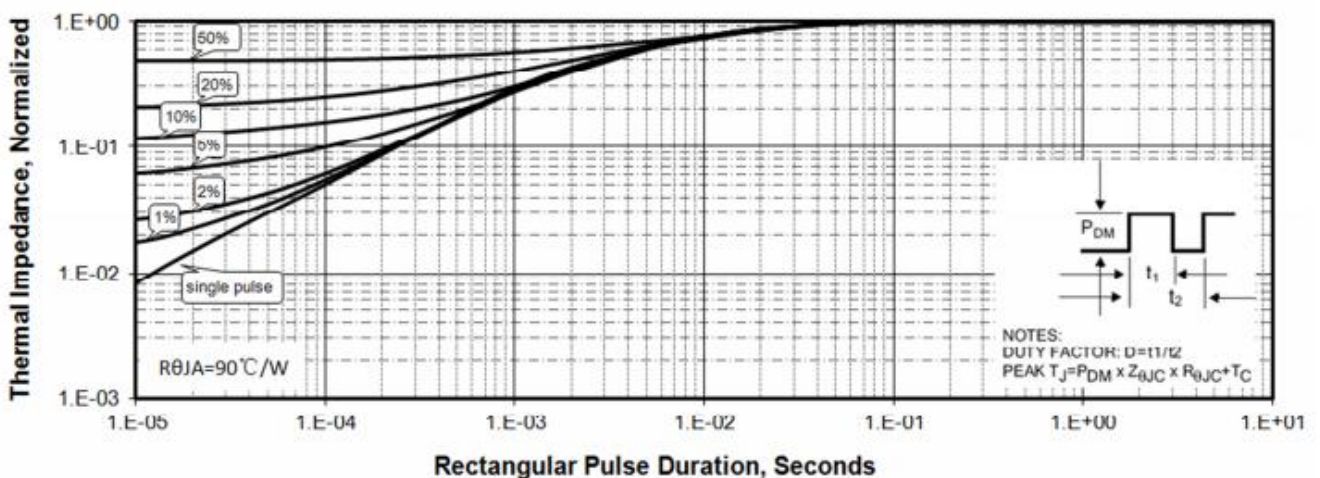
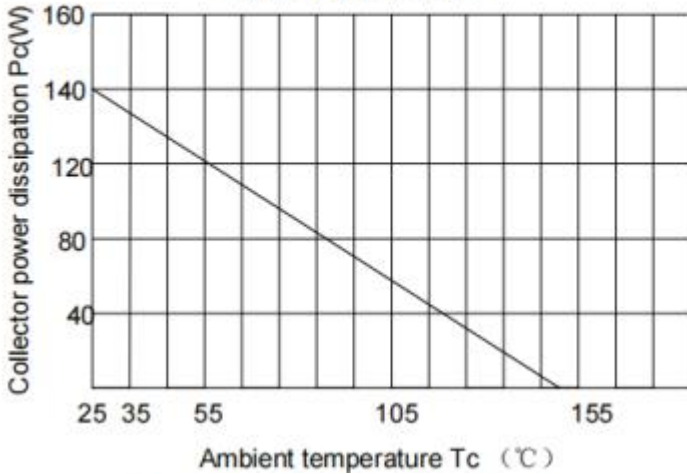### Figure 2 . Max. Power Dissipation vs Case Temperature

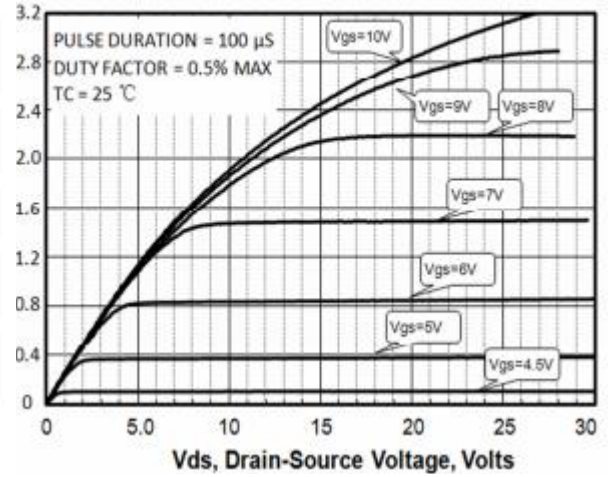### Figure 3 . Output Characteristics

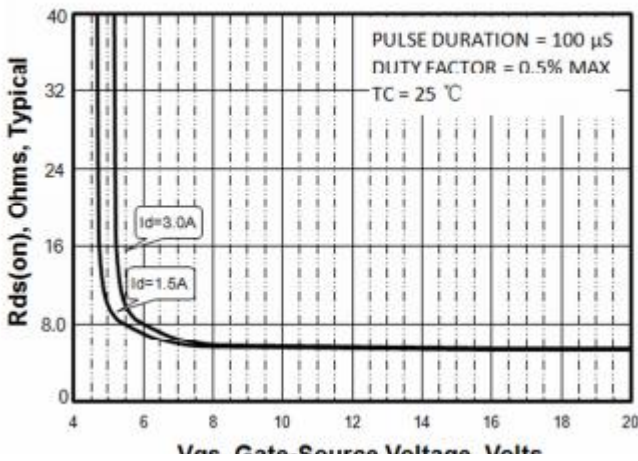### Figure 4. Rdson vs Gate Voltage

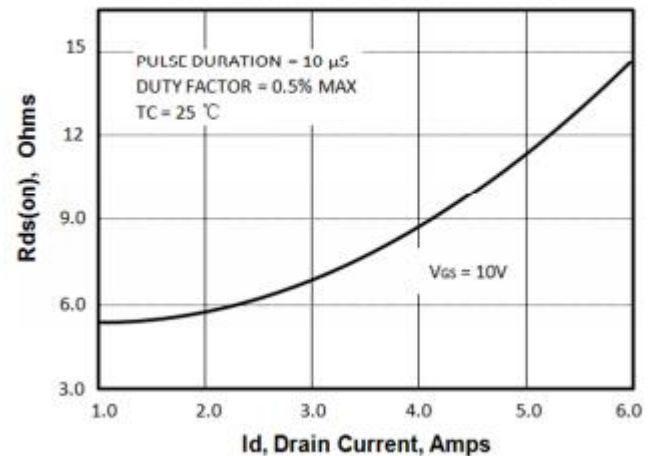### Figure 5. Drain to Source ON Resistance vs Drain Current
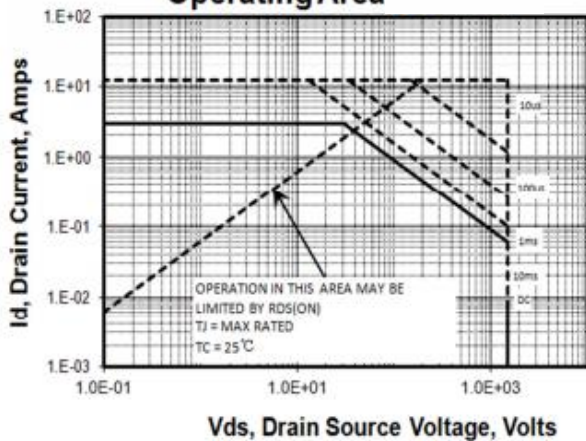

Figure 6. Maximum Safe Operating Area
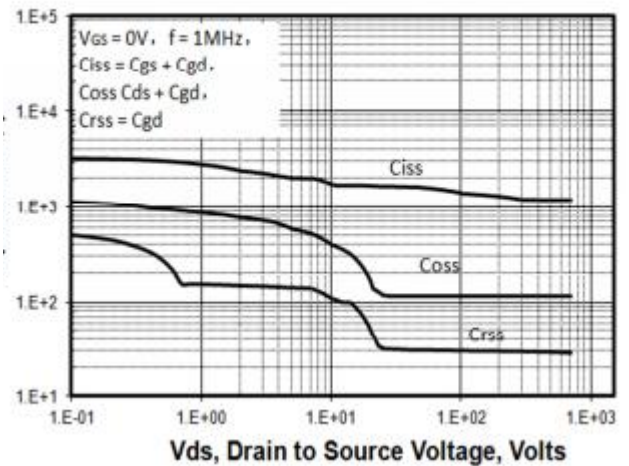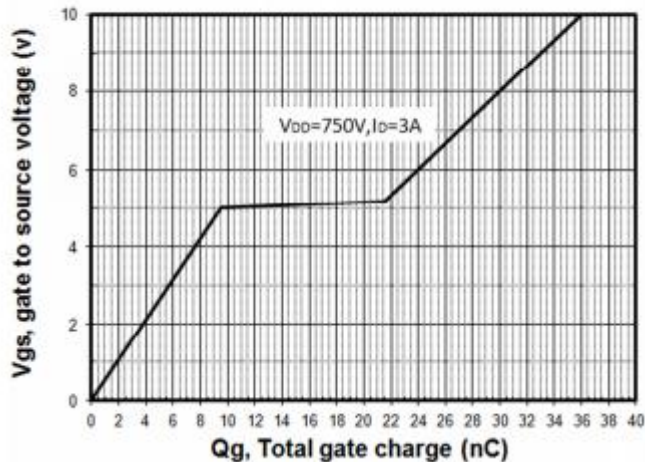

Figure 7. Capacitance vs Vds

Figure 8. Typical Gate Charge

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