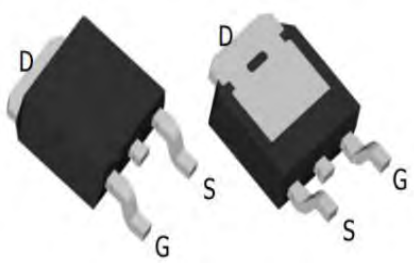
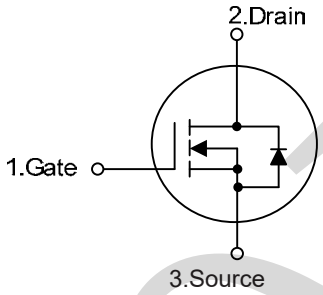
Trench N-channel Power MOSFET

MSR110N10D

TO-252





V_{DS}	100	V
$R_{DS(on),TYP}$@ V_{GS}=10 V	95	mΩ
I_D	15	A

Features

1、Low on – resistance

2、Package TO-252

3、TrenchFET Power MOSFET

Applications

1、Uninterruptible Power Supply(UPS)

2、Inverter System

Maximum ratings, at TA =25°C, unless otherwise specified

Symbol	Parameter		Rating	Unit
$V_{(BR)DSS}$	Drain-Source breakdown voltage		100	V
V_{GS}	Gate-Source voltage		±20	V
I_D	Continuous drain current @VGS=10V	T_C=25°C	15	A
		T_C=100°C	10	A
I_{DM}	Pulse drain current tested (Note 1)	T_C=25°C	60	A
P_D	Maximum power dissipation	T_C=25°C	55	W
T_{STG},T_J	Storage and Junction Temperature Range		-55 to ＋150	°C

Thermal Characteristics

Symbol	Parameter	Typical	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	2.72	°C/W

Electrical Characteristics

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @Tj=25°C (unless otherwise stated)						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	100	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=100V,V_{GS}=0V	--	--	1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±20V,V_{DS}=0V	--	--	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250μA	1.0	1.6	3.0	V
$R_{DS(on)}$	Drain-Source On-State Resistance (Note 2)	V_{GS}=10V, I_D=10A	--	95	110	mΩ
		V_{GS}=4.5V, I_D=5A	--	100	130	mΩ

Dynamic Electrical Characteristics@Tj = 25°C (unless otherwise stated)

C_{iss}	Input Capacitance	V_{DS}=50V, V_{GS}=0V, f=1MHz	--	632	--	pF
C_{oss}	Output Capacitance		--	37	--	pF
C_{rss}	Reverse Transfer Capacitance		--	21	--	pF
Q_g	Total Gate Charge	V_{DS}=80V, I_D=10A , V_{GS}=10V	--	19.2	--	nC
Q_{gs}	Gate-Source Charge		--	3.4	--	nC
Q_{gd}	Gate-Drain Charge		--	6.1	--	nC

Switching Characteristics

Td(on)	Turn-on Delay Time	V_{DD}=50V, R_L=2.8Ω, R_{REN}=6.0Ω, I_D=10A	--	12.6	--	ns
Tr	Turn-on Rise Time		--	6	--	ns
Td(off)	Turn-Off Delay Time		--	32.5	--	ns
Tf	Turn-Off Fall Time		--	4.3	--	ns

Source-Drain Diode Characteristics @Tj = 25°C (unless otherwise stated)

I_S	Maximum Continuous Drain to Source Diode Forward Current		--	--	15	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		--	--	60	A
V_{SD}	Forward on voltage	I_S=10A,V_{GS}=0V	--	--	1.2	V

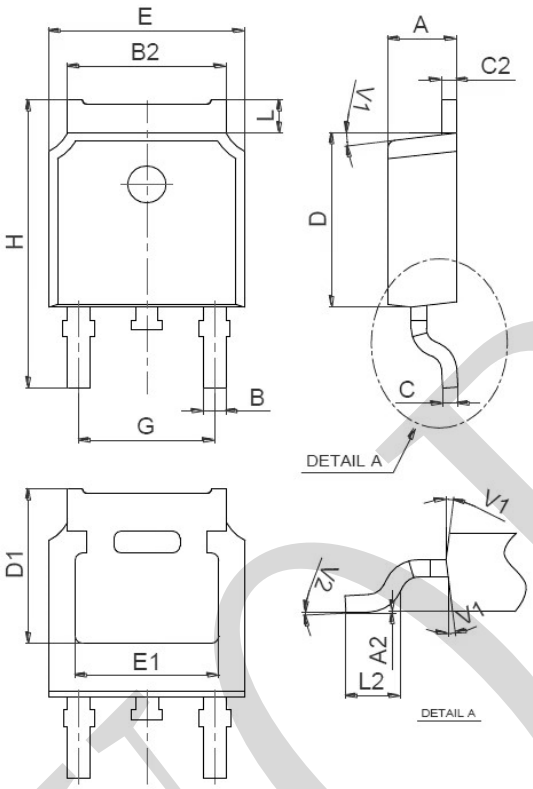
NOTE:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Pulse Test: Pulse width ≤ 300μs, Duty Cycle ≤ 2%.

PACKAGE OUTLINE DIMENSIONS

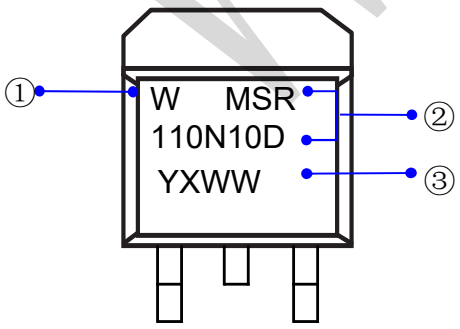
Note:unit mm

TO-252



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0		0.10	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.18		5.48	0.202		0.216
C	0.40		0.60	0.016		0.024
C2	0.44		0.58	0.017		0.023
D	5.90		6.30	0.232		0.248
D1	5.30REF			0.209REF		
E	6.40		6.80	0.252		0.268
E1	4.63			0.182		
G	4.47		4.67	0.176		0.184
H	9.50		10.70	0.374		0.421
L	1.09		1.21	0.043		0.048
L2	1.35		1.65	0.053		0.065
V1		7°			7°	
V2	0°		6°	0°		6°

Marking Information



①W : Company's trademark
②Product model : MSR110N10D
③PDC information：

Y X WW

WW:Week code(01 to 53)
X:Internal identification code
Y:Year code(ex:0=2020)