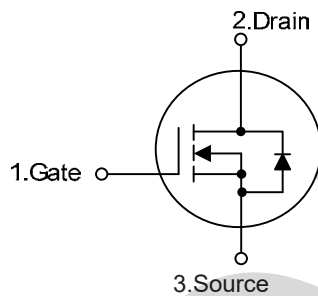
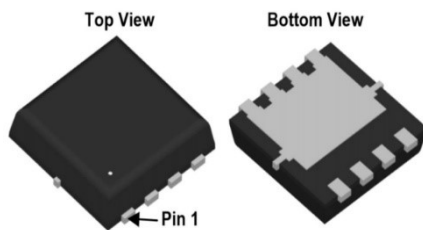


TRENCH N-Channel Enhancement Mode Power MOSFET

MSR4R5N03D33

PDFN3*3-8L



V_{DS}	30	V
$R_{DS(on),TYP@ V_{GS}=10V}$	3.6	m Ω
I_D	90	A

Features

- 1、Low on – resistance
- 2、Package PDFN3*3-8L
- 3、TRENCH Power MOSFET

Applications

- 1、Portable Equipment and Battery Powered systems
- 2、Power Management in Notebook Computer

Maximum ratings, at $T_A = 25^\circ\text{C}$, unless otherwise specified

Symbol	Parameter		Rating	Unit
V(BR)DSS	Drain-Source breakdown voltage		30	V
VGS	Gate-Source voltage		±20	V
IAS	Avalanche Current		42	A
ID	Continuous drain current @VGS=10V	Tc=25°C	90	A
		Tc=100°C	48	A
IDM	Pulse drain current tested	Tc=25°C	360	A
EAS	Avalanche energy, single pulsed		39	mJ
PD	Maximum power dissipation	Tc=25°C	81	W
TSTG,TJ	Storage and Junction Temperature Range		-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Typical	Unit
R _{θJC}	Thermal Resistance, Junction-to-Case	3.5	°C/W
R _{θJA}	Thermal Resistance, Junction-to-Ambient	42	°C/W

Electrical Characteristics

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
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Static Electrical Characteristics @T_j=25°C (unless otherwise stated)

V(BR)DSS	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	30	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} =0V	--	--	1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±10	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.1	1.6	2.1	V
R _{DS(on)}	Drain-Source On-State Resistance ④	V _{GS} =10V, I _D =20A	--	3.6	4.5	mΩ
		V _{GS} =4.5V, I _D =18A	--	5.3	7.2	mΩ
g _{fs}	Forward Transconductance	V _{DS} =5V, I _D =20A	--	20	--	S

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

C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V , f=1MHz	--	1859	--	pF
C _{oss}	Output Capacitance		--	260	--	pF
C _{rss}	Reverse Transfer Capacitance		--	212	--	pF
R _g	Gate Resistance	V _{DS} =0V, V _{GS} =0V , f=1MHz	--	2.2	--	Ω
Q _g (10V)	Total Gate Charge	V _{DS} =25V, I _D =14A , V _{GS} =10V	--	48	--	nC
Q _{gs}	Gate-Source Charge		--	3.4	--	nC
Q _{gd}	Gate-Drain Charge		--	14	--	nC

Switching Characteristics

Td(on)	Turn-on Delay Time	V _{DS} =15V, V _{GS} =10V, R _L =1.0Ω, R _G =3.9Ω,	--	9.6	--	ns
Tr	Turn-on Rise Time		--	23.4	--	ns
Td(off)	Turn-Off Delay Time		--	62.8	--	ns
Tf	Turn-Off Fall Time		--	23	--	ns

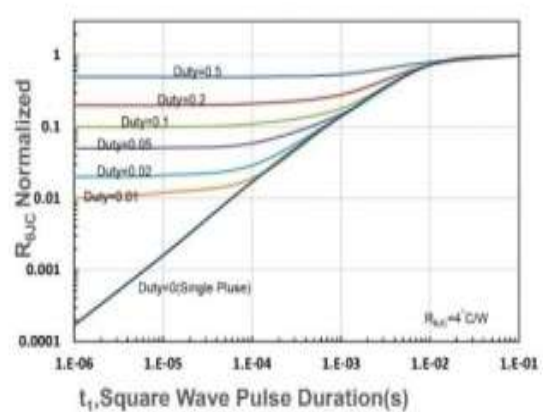
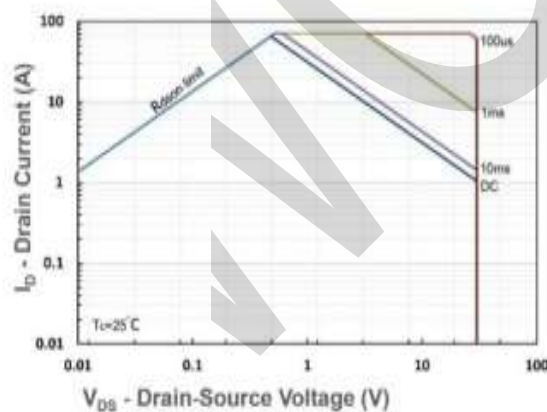
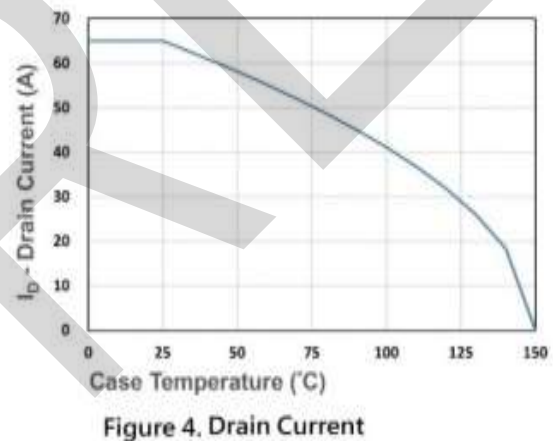
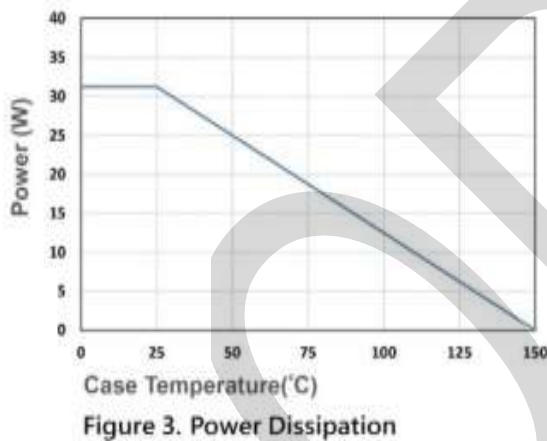
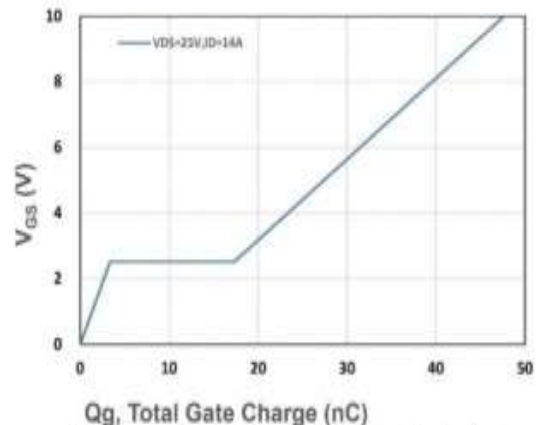
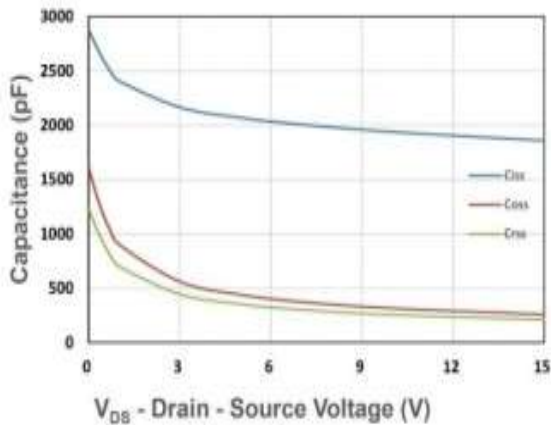
Source -Drain Diode Characteristics @T_j = 25°C (unless otherwise stated)

VSD	Forward on voltage	I _S =1A, V _{GS} =0V	--	0.7	1.1	V
I _S	Diode Forward Current	T _C = 25°C	--	--	90	A
T _{rr}	Reverse Recovery Time (Note1)	I _F =2A , V _{GS} =0V di/dt=100A/μs	--	18.2	--	ns
Q _{rr}	Reverse Recovery Charge (Note1)		--	9.2	--	nC

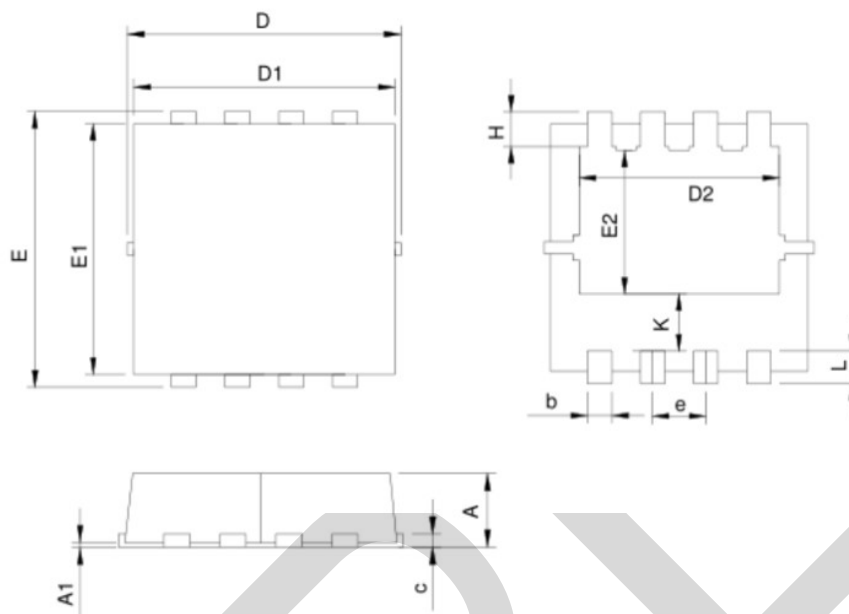
NOTE:

- ① Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
- ② Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 0.5%

■ TYPICAL CHARACTERISTICS

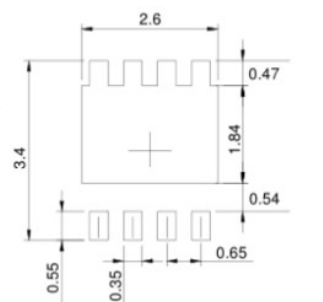


PACKAGE OUTLINE DIMENSIONS



SYMBOL	DFN3.3x3.3-8			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.70	1.00	0.028	0.039
A1	0.00	0.05	0.000	0.002
b	0.25	0.35	0.010	0.014
c	0.14	0.20	0.006	0.008
D	3.10	3.50	0.122	0.138
D1	3.05	3.25	0.120	0.128
D2	2.35	2.55	0.093	0.100
E	3.10	3.50	0.122	0.138
E1	2.90	3.10	0.114	0.122
E2	1.64	1.84	0.065	0.072
e	0.65 BSC		0.026 BSC	
H	0.32	0.52	0.013	0.020
K	0.59	0.79	0.023	0.031
L	0.25	0.55	0.010	0.022

RECOMMENDED LAND PATTERN



UNIT: mm