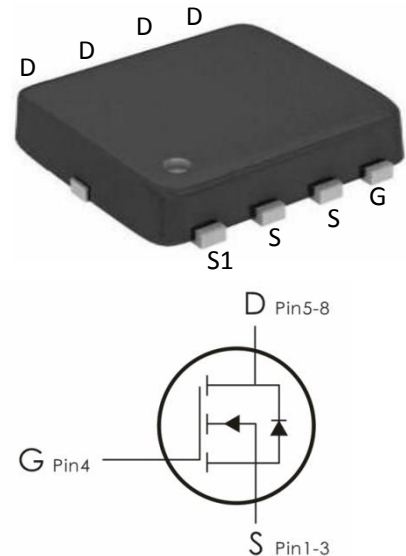


Description:

This P-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge. It can be used in a wide variety of applications.

Features:

- 1) $V_{DS}=-20V, I_D=-55A, R_{DS(on)}<6m\Omega @ V_{GS}=-4.5V$ (Typ : $5m\Omega$)
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra low $R_{DS(on)}$.
- 5) Excellent package for good heat dissipation.



Package Marking and Ordering Information:

Part NO.	Marking	Package	Packing
DOZ55P02	55P02	DFN3*3-8	5000 pcs/Reel

Absolute Maximum Ratings: ($T_C=25^\circ C$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	± 12	V
I_D	Continuous Drain Current- $T_C=25^\circ C$	-55	A
	Continuous Drain Current- $T_C=100^\circ C$	-32	A
I_{DM}	Pulsed Drain Current ¹	-210	A
P_D	Total Power Dissipation	48	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +175	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	2.6	$^\circ C/W$

Electrical Characteristics: ($T_c=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250 μ A	-20	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =-20V	---	---	-1	μ A
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ± 12V, V _{DS} =0A	---	---	± 100	nA
On Characteristics						
V _{GS(th)}	Gate-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =-250 μ A	-0.35	-0.65	-1	V
R _{DS(ON)}	Static Drain-Source On-Resistance ³	V _{GS} =-4.5V, I _D =-15A	---	5	6	m Ω
		V _{GS} =-2.5V, I _D =-12A	---	7	9	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =-10V, V _{GS} =0V, f=1MHz	---	4589	---	pF
C _{oss}	Output Capacitance		---	504	---	
C _{rss}	Reverse Transfer Capacitance		---	439	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DD} =-10V, I _D =-14A, V _{GS} =-10V, R _G =2.7 Ω	---	7	---	ns
t _r	Rise Time		---	58	---	ns
t _{d(off)}	Turn-Off Delay Time		---	110	---	ns
t _f	Fall Time		---	42	---	ns
Q _g	Total Gate Charge	V _{GS} =-4.5V, V _{DS} =-10V, I _D =-15A	---	45	---	nC
Q _{gs}	Gate-Source Charge		---	7.5	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	9	---	nC
Drain-Source Diode Characteristics						
V _{SD}	Drain Diode Forward Voltage	V _{GS} =0V, I _S =-20A	---	---	-1.2	V
I _S	Continuous Source Current	V _G =V _D =0V	---	---	-55	A
I _{SM}	Pulsed Source Current		---	---	-210	A
trr	Reverse Recovery Time	TJ=25 °C, ISD=-15A,	---	18	---	ns
qrr	Reverse Recovery Charge	VGS=0V ,di/dt=-100A/μs	---	7.7	---	nc

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition: $T_J=25^{\circ}\text{C}$, $V_{DD}=-10\text{V}$, $V_G=-10\text{V}$, $R_G=5.9\Omega$, $L=0.5\text{mh}$, $I_{AS}=-13.2\text{A}$
3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 0.5\%$

Typical Characteristics: ($T_c=25^{\circ}\text{C}$ unless otherwise noted)

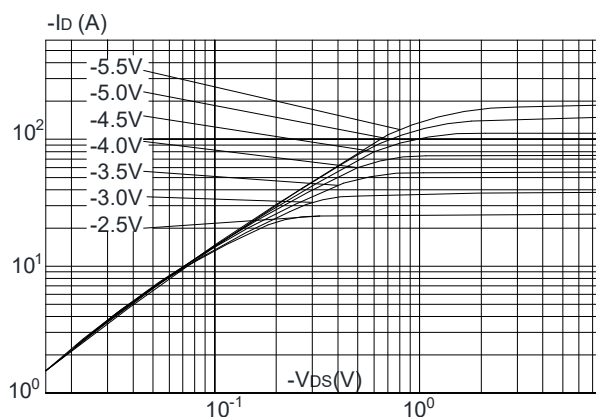


Figure1: Output Characteristics

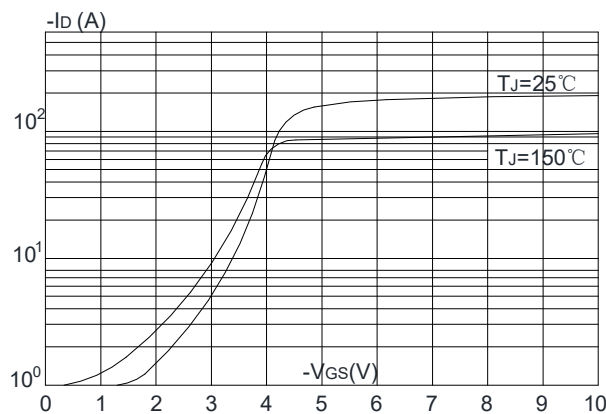


Figure 2: Typical Transfer Characteristics

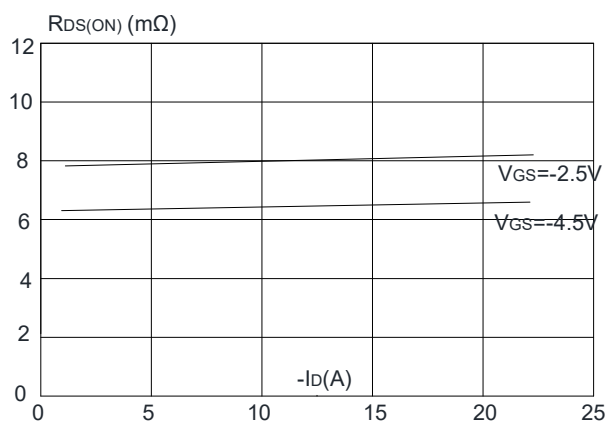


Figure 3: On-resistance vs. Drain Current

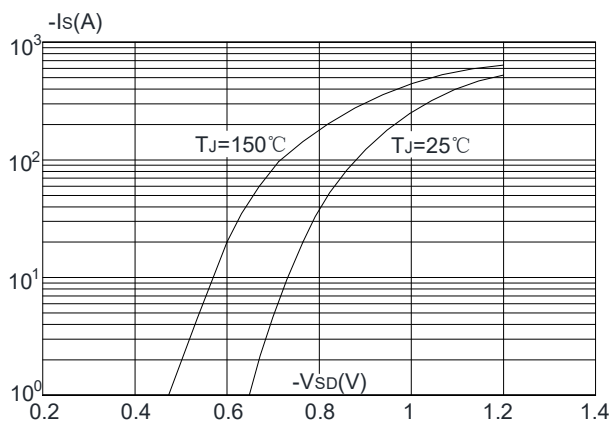


Figure 4: Body Diode Characteristics

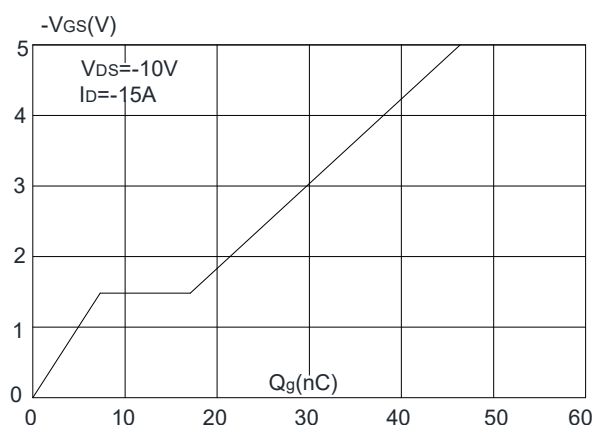


Figure 5: Gate Charge Characteristics

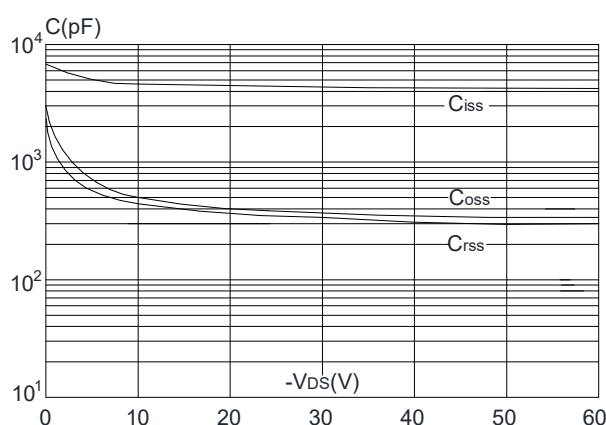


Figure 6: Capacitance Characteristics

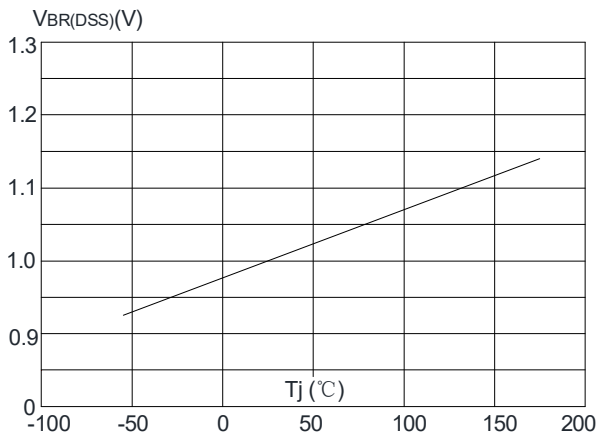


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

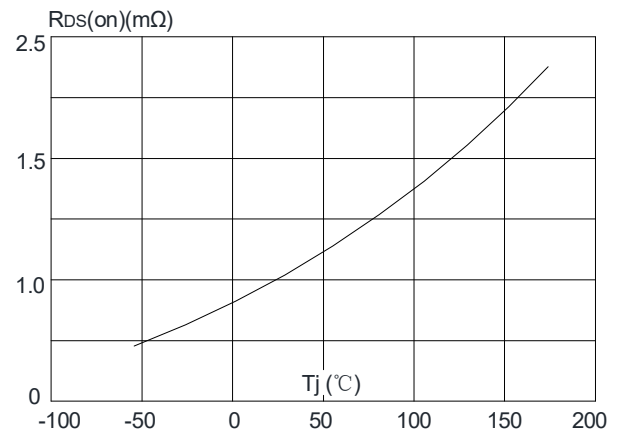


Figure 8: Normalized on Resistance vs. Junction Temperature

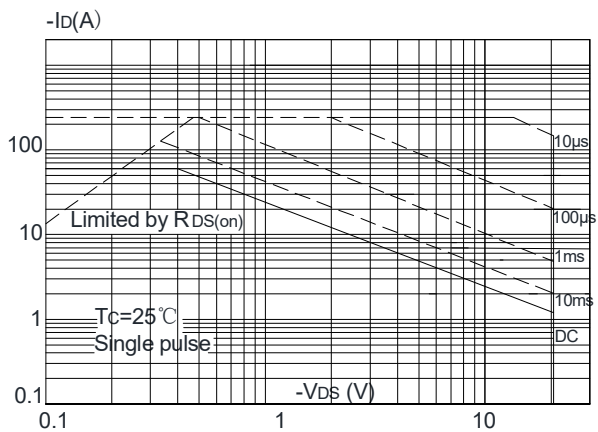


Figure 9: Maximum Safe Operating Area

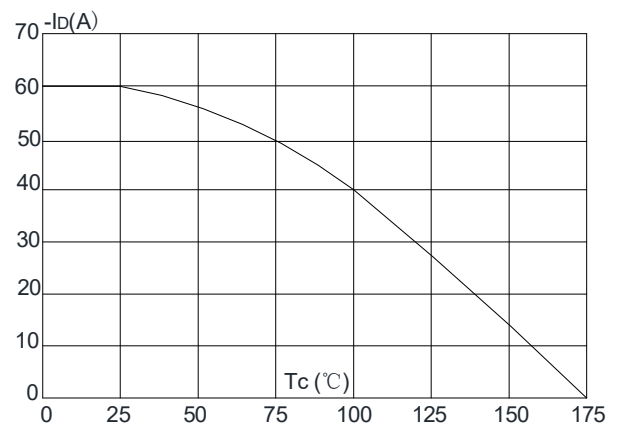


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

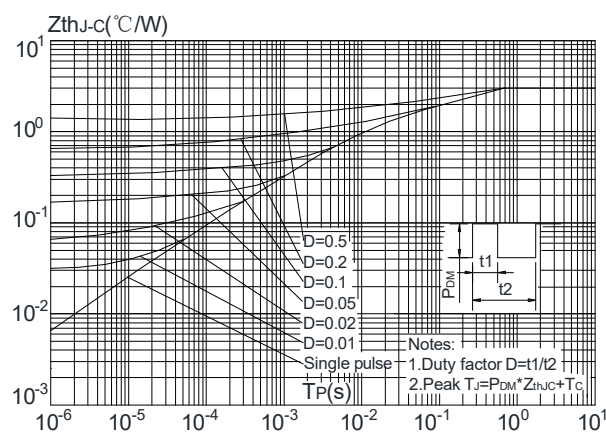
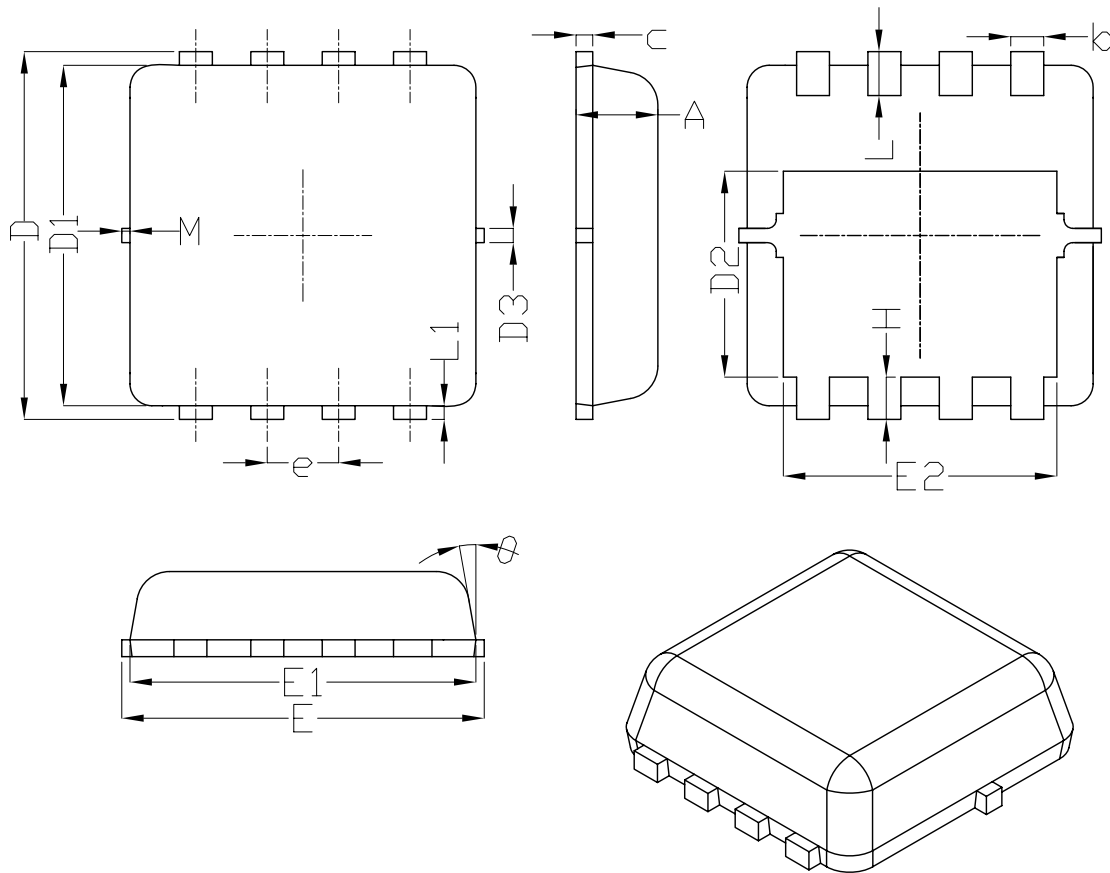
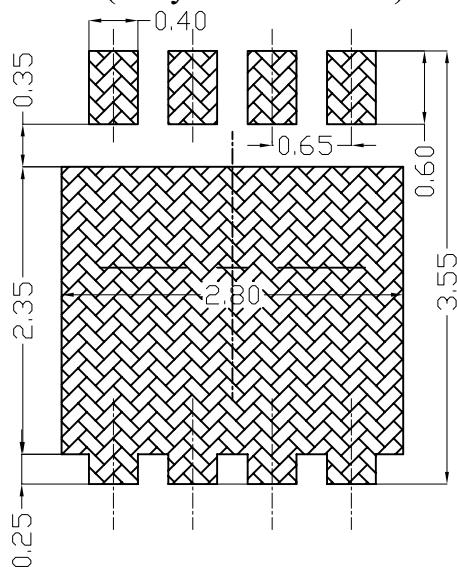


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

DFN3X3-8 Package Outline Data


**Land Pattern
(Only for Reference)**



UNIT: mm

SYMBOL	DIMENSIONAL REOMTS		
	MIN	NOM	MAX
A	0.70	0.75	0.80
b	0.25	0.30	0.35
c	0.10	0.15	0.25
D	3.25	3.35	3.45
D1	3.00	3.10	3.20
D2	1.78	1.88	1.98
D3	---	0.13	---
E	3.20	3.30	3.40
E1	3.00	3.15	3.20
E2	2.39	2.49	2.59
e	0.65BSC		
H	0.30	0.39	0.50
L	0.30	0.40	0.50
L1	---	0.13	---
θ	---	10°	12°
M	*	*	0.15
* Not specified			

Marking Information:

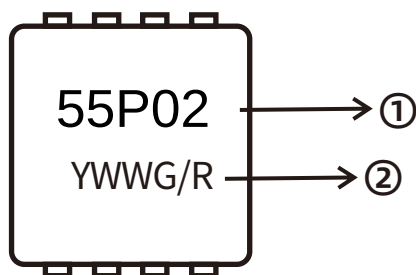
①. Part NO.

②. Date Code(YWWG / R)

Y : Year Code , last digit of the year

WW : Week Code(01-53)

G/R : G(Green) /R(Lead Free)



Previous Version

Version	Date	Subjects (major changes since last revision)
1.0	2024-04-29	Release of final version

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