Feature

- 100% EAS Guaranteed
- Green Device Available
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- Advanced high cell density Trench technology

Product Summary

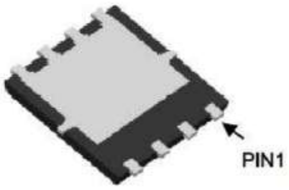
RoHS

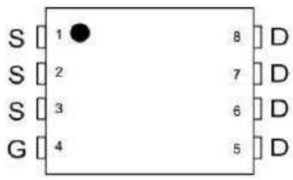
V_{DS}	30	V
$R_{DS(on),typ}$ V_{GS}=10V	4.8	mΩ
I_D	55	A

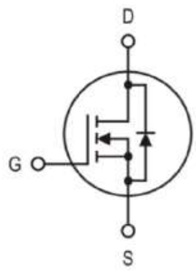
Application

- Power Management in Inverter System

top view







DFN3.3*3.3-8

Maximum ratings, at *T* A=25 °C, unless otherwise specified

Symbol	Parameter		Rating	Unit
$V_{(BR)DSS}$	Drain-Source breakdown voltage		30	V
I_S	Diode continuous forward current	T_C=25°C	55	A
I_D	Continuous drain current @V_{GS}=10V	T_C =25°C	55	A
		T_C =100°C	35	A
I_{DM}	Pulse drain current tested ①	T_A =25°C	110	A
EAS	Avalanche energy, single pulsed ②		105	mJ
P_D	Maximum power dissipation	T_C =25°C	40	W
V_{GS}	Gate-Source voltage		±20	V
MSL			Level 3	
T_{STG} , T_J	Storage and junction temperature range		-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Typical	Unit
$R_{θJL}$	Thermal Resistance, Junction-to-Lead	40	°C/W
$R_{θJA}$	Thermal Resistance, Junction-to-Ambient	70	°C/W

Typical Electrical Characteristics

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
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(Tj=25℃)	V_{DS}=30V,V_{GS}=0V	--	--	1	μA
	Zero Gate Voltage Drain Current(Tj=125℃)	V_{DS}=30V,V_{GS}=0V	--	--	100	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	1.5	2.5	V
$R_{DS(ON)}$	Drain-Source On-State Resistance ③	V_{GS}=10V, I_D=30A	--	4.8	6	mΩ
$R_{DS(ON)}$	Drain-Source On-State Resistance ③	V_{GS}=4.5V, I_D=20A	--	7.5	12	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
C_{iss}	Input Capacitance	V_{DS}=15V,V_{GS}=0V, f=1MHz		3105		pF
C_{oss}	Output Capacitance			410		pF
C_{rss}	Reverse Transfer Capacitance			305		pF
R_g	Gate Resistance	f=1MHz	--	1.6	--	Ω
Q_g	Total Gate Charge	V_{DS}=15V,I_D=15A, V_{GS}=10V	--	31.6	--	nC
Q_{gs}	Gate-Source Charge		--	6.07	--	nC
Q_{gd}	Gate-Drain Charge		--	13.8	--	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=15V, I_D=20A, R_G=1.5Ω, V_{GS}=10V	--	11.2	--	nS
t_r	Turn-on Rise Time		--	49	--	nS
$t_{d(off)}$	Turn-Off Delay Time		--	35	--	nS
t_f	Turn-Off Fall Time		--	7.8	--	nS
Source- Drain Diode Characteristics@ T_J = 25°C (unless otherwise stated)						
V_{SD}	Forward on voltage	I_{SD}=2A,V_{GS}=0V	--	0.8	1.0	V
t_{rr}	Reverse Recovery Time	Tj=25℃,I_{sd}=10A, V_{GS}=0V di/dt=500A/μs	--	20	--	nS
Q_{rr}	Reverse Recovery Charge			11.5		nC

NOTE:

① Repetitive rating; pulse width limited by max. junction temperature.

② Limited by T_{Jmax}, starting T_J = 25°C, L = 0.1mH,R_G = 25Ω, I_{AS} = 42A, V_{GS} =10V. Part not recommended for use above this value

③ Pulse width ≤ 300μs; duty cycle≤ 2%.

Typical Characteristics

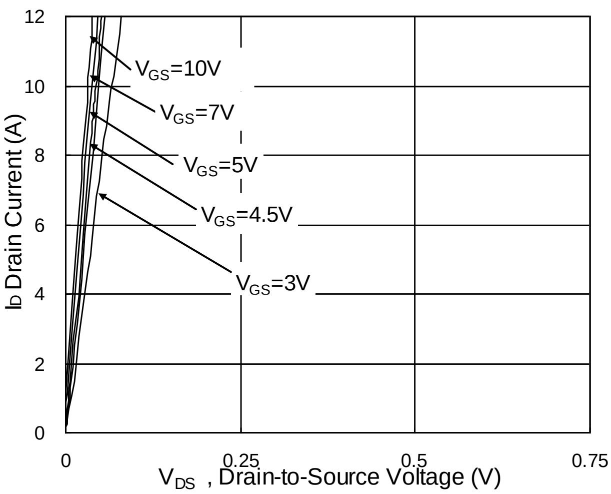


Fig.1 Typical Output Characteristics

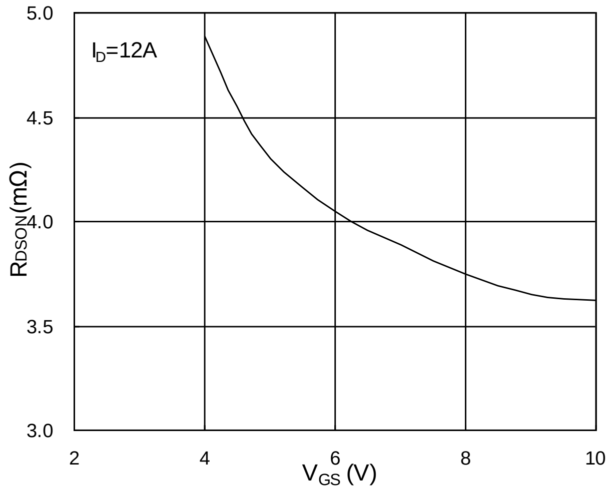


Fig.2 On-Resistance vs. G-S Voltage

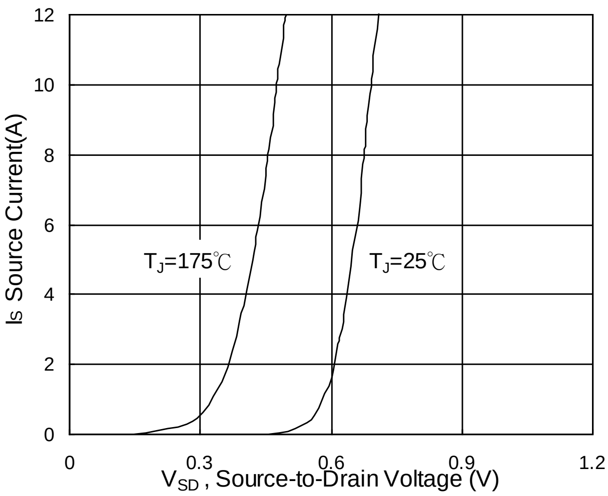


Fig.3 Forward Characteristics of Reverse

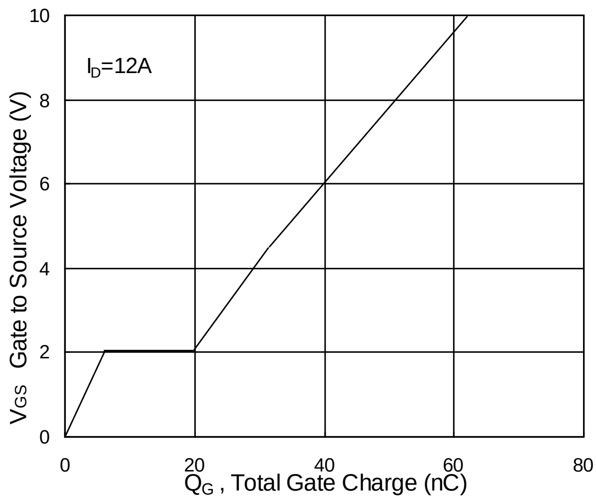


Fig.4 Gate-Charge Characteristics

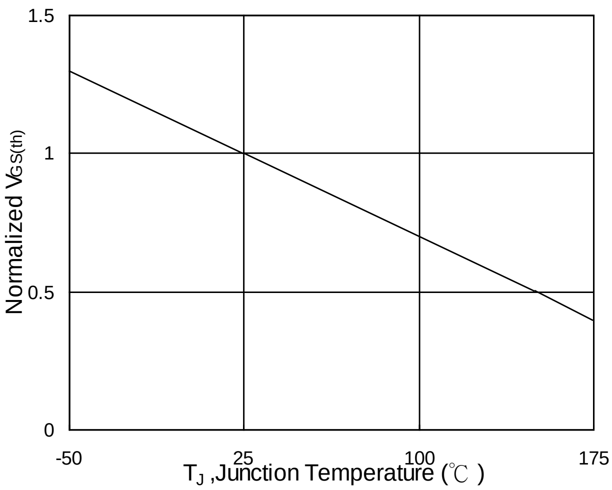


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

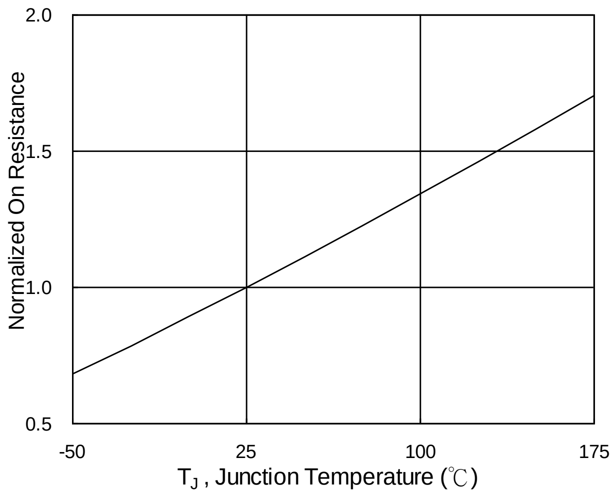


Fig.6 Normalized R_{DSON} vs. T_J

Typical Characteristics

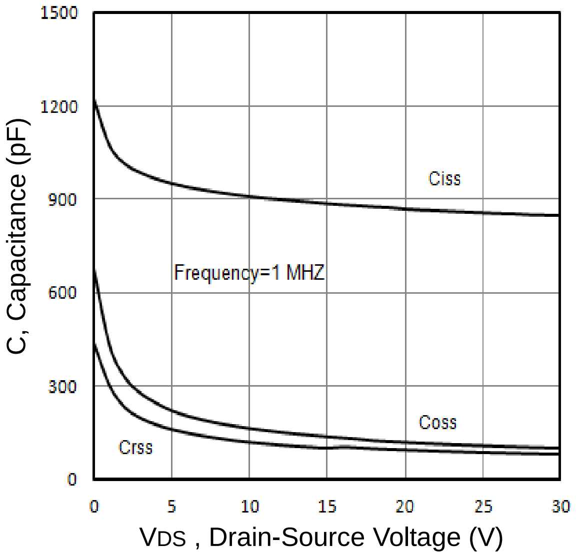


Fig7. Typical Capacitance Vs.Drain-Source Voltage

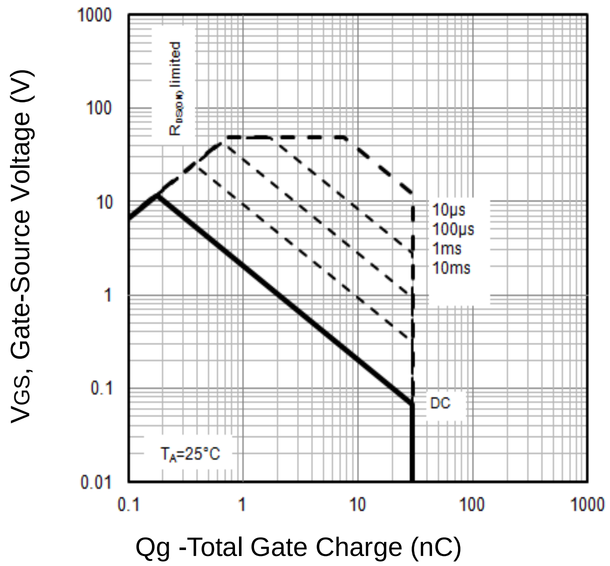


Fig8. Typical Gate Charge Vs.Gate-Source Voltage

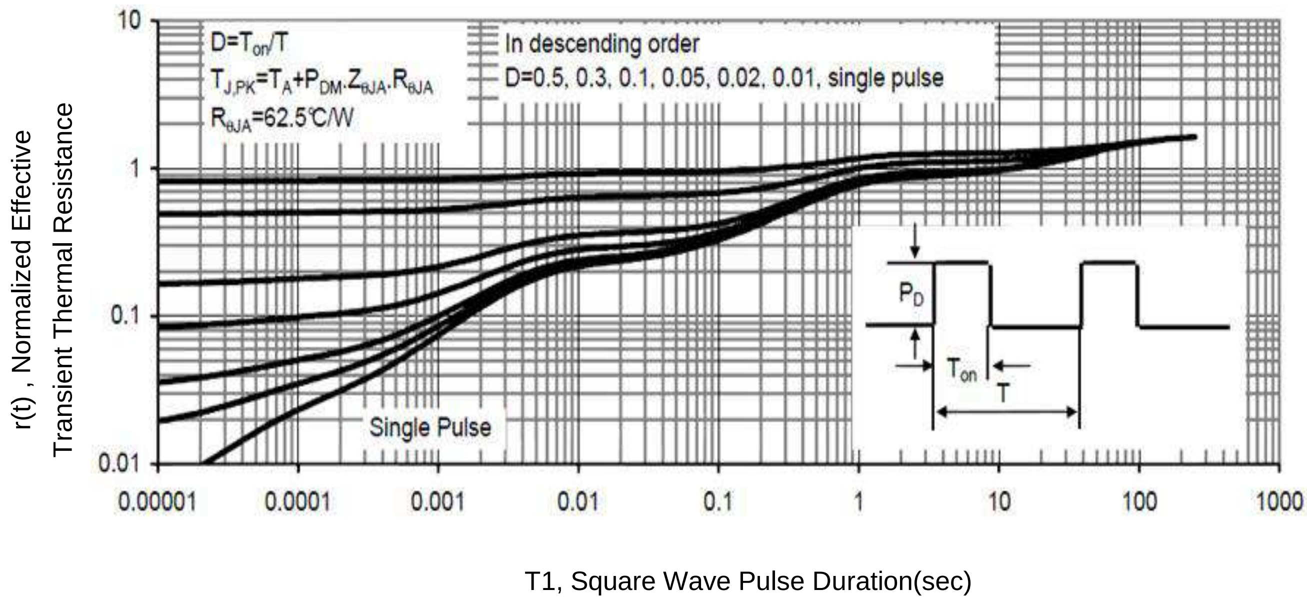


Fig9. T1 ,Transient Thermal Response Curve

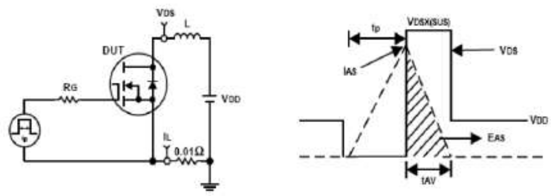


Fig10. Unclamped Inductive Test Circuit and waveforms

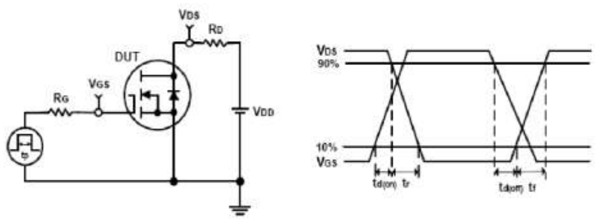
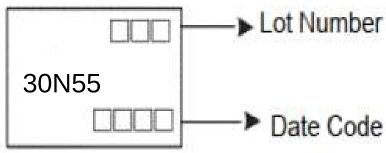


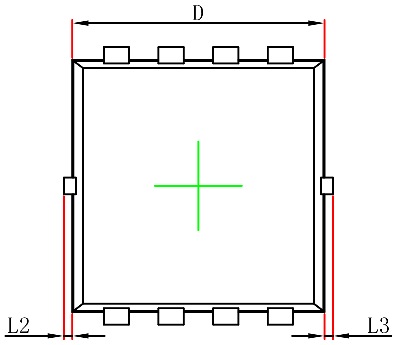
Fig11. Switching Time Test Circuit and waveforms

Ordering and Marking Information

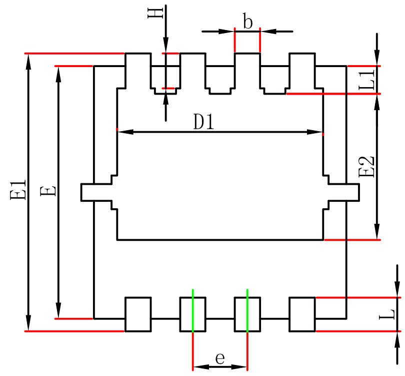
Device	Marking	Package	Packaging	Quantity
JM3N30N55E-R	30N55	DFN3.3*3.3-8	Tape&Reel	5000

PACKAGE	MARKING
DFN3.3*3.3-8	

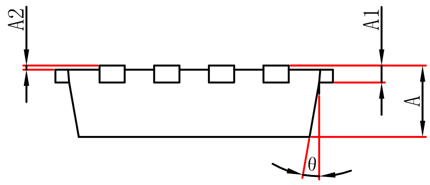
DFN 3.3×3.3 -8 (P0.65T0.80) PACKAGE OUTLINE DIMENSIONS



Top View
[顶视图]



Bottom View
[背视图]



Side View
[侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.650	0.850	0.026	0.033
A1	0.152 REF.		0.006 REF.	
A2	0~0.05		0~0.002	
D	2.900	3.100	0.114	0.122
D1	2.300	2.600	0.091	0.102
E	2.900	3.100	0.114	0.122
E1	3.150	3.450	0.124	0.136
E2	1.535	1.935	0.060	0.076
b	0.200	0.400	0.008	0.016
e	0.550	0.750	0.022	0.030
L	0.300	0.500	0.012	0.020
L1	0.180	0.480	0.007	0.019
L2	0~0.100		0~0.004	
L3	0~0.100		0~0.004	
H	0.315	0.515	0.012	0.020
θ	9°	13°	9°	13°

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