

**Feature**

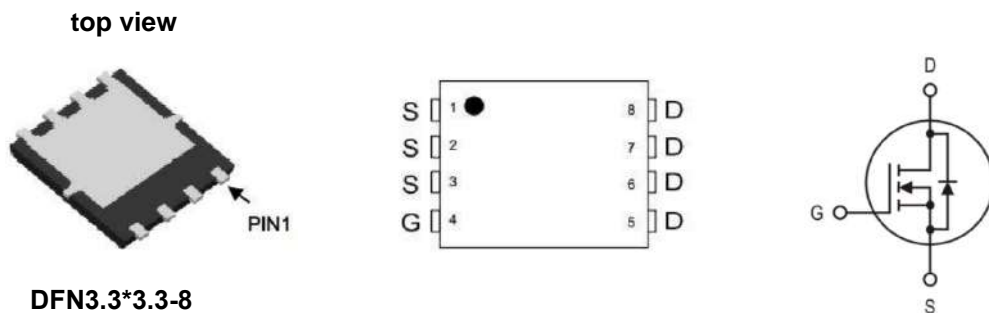
- 100% EAS Guaranteed
- Green Device Available
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- Advanced high cell density Trench technology

**Application**

- Power Management in Inverter System

**Product Summary**


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


**Maximum ratings, at  $T_A=25^\circ C$ , unless otherwise specified**

Symbol	Parameter	Rating	Unit
$V_{(BR)DSS}$	Drain-Source breakdown voltage	30	V
$I_S$	Diode continuous forward current	$T_C=25^\circ C$	55 A
$I_D$	Continuous drain current @ $V_{GS}=10V$	$T_C=25^\circ C$	55 A
		$T_C=100^\circ C$	35 A
$I_{DM}$	Pulse drain current tested ①	$T_A=25^\circ C$	220 A
EAS	Avalanche energy, single pulsed ②	105	mJ
$P_D$	Maximum power dissipation	$T_C=25^\circ C$	40 W
$V_{GS}$	Gate-Source voltage	$\pm 20$	V
MSL		Level 3	
$T_{STG}, T_J$	Storage and junction temperature range	-55 to 150	$^\circ C$

**Thermal Characteristics**

Symbol	Parameter	Typical	Unit
$R_{\theta JL}$	Thermal Resistance, Junction-to-Lead	40	$^\circ C/W$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	70	$^\circ C/W$

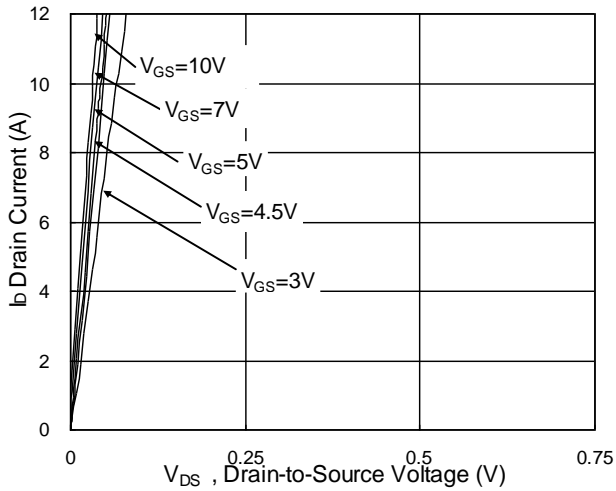
**Typical Electrical Characteristics**

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
<b>Static Electrical Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated)</b>						
V <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	30	--	--	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current(T <sub>J</sub> =25°C)	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V	--	--	1	μA
	Zero Gate Voltage Drain Current(T <sub>J</sub> =125°C)	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V	--	--	100	μA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	--	--	±100	nA
V <sub>GS(TH)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1.0	1.4	2.5	V
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance ③	V <sub>GS</sub> =10V, I <sub>D</sub> =30A	--	4.8	6	mΩ
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance ③	V <sub>GS</sub> =4.5V, I <sub>D</sub> =20A	--	6.9	12	mΩ
<b>Dynamic Electrical Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated)</b>						
C <sub>ISS</sub>	Input Capacitance	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f=1MHz		1280		pF
C <sub>OSS</sub>	Output Capacitance			169		pF
C <sub>rss</sub>	Reverse Transfer Capacitance			126		pF
R <sub>g</sub>	Gate Resistance	f=1MHz	--	1.6	--	Ω
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =15V, I <sub>D</sub> =15A, V <sub>GS</sub> =10V	--	31.6	--	nC
Q <sub>gs</sub>	Gate-Source Charge		--	6.07	--	nC
Q <sub>gd</sub>	Gate-Drain Charge		--	13.8	--	nC
<b>Switching Characteristics</b>						
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>DD</sub> =15V, I <sub>D</sub> =20A, R <sub>G</sub> =1.5Ω, V <sub>GS</sub> =10V	--	11.2	--	nS
t <sub>r</sub>	Turn-on Rise Time		--	49	--	nS
t <sub>d(off)</sub>	Turn-Off Delay Time		--	35	--	nS
t <sub>f</sub>	Turn-Off Fall Time		--	7.8	--	nS
<b>Source- Drain Diode Characteristics @ T<sub>J</sub> = 25°C (unless otherwise stated)</b>						
V <sub>SD</sub>	Forward on voltage	I <sub>SD</sub> =2A, V <sub>GS</sub> =0V	--	0.8	1.0	V
t <sub>rr</sub>	Reverse Recovery Time	T <sub>J</sub> =25°C, I <sub>sd</sub> =10A, V <sub>GS</sub> =0V	--	20	--	nS
Q <sub>rr</sub>	Reverse Recovery Charge	di/dt=500A/μs		11.5		nC

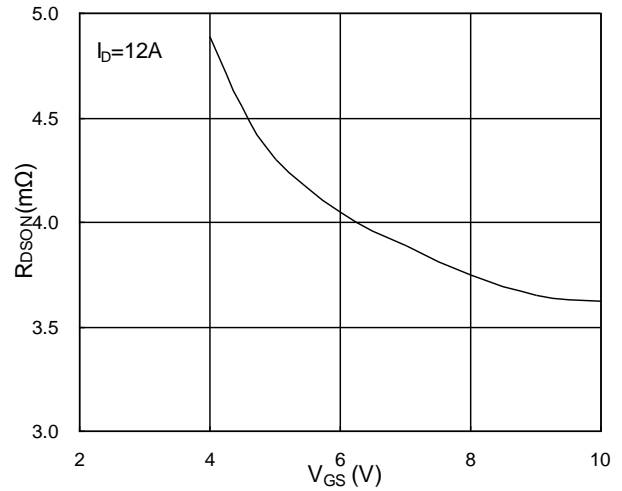
**NOTE:**

- ① Repetitive rating; pulse width limited by max. junction temperature.
- ② Limited by T<sub>Jmax</sub>, starting T<sub>J</sub> = 25°C, L = 0.1mH, R<sub>G</sub> = 25Ω, I<sub>AS</sub> = 42A, V<sub>GS</sub> = 10V. Part not recommended for use above this value
- ③ Pulse width ≤ 300μs; duty cycle ≤ 2%.

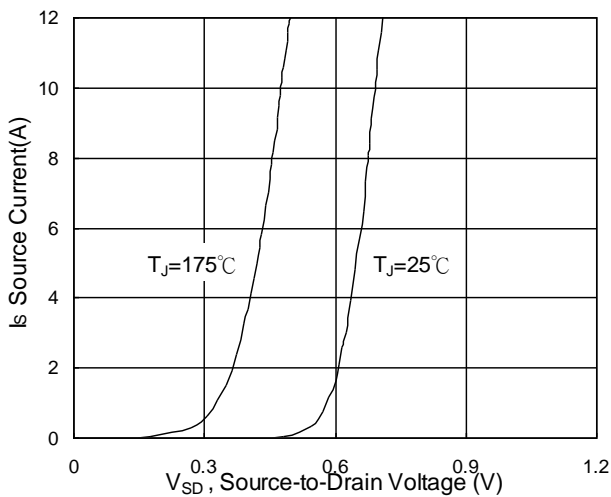
**Typical Characteristics**



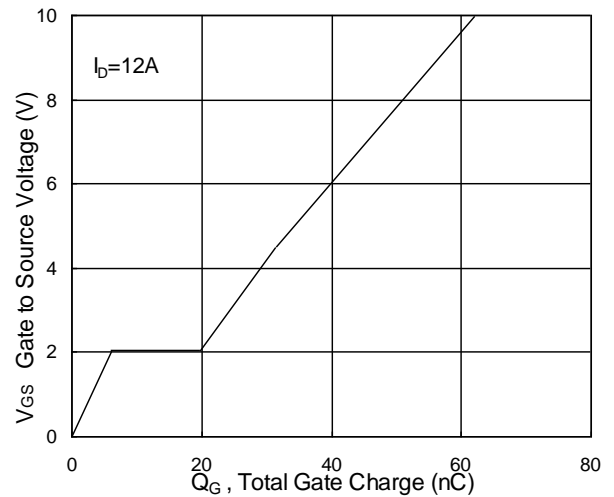
**Fig.1 Typical Output Characteristics**



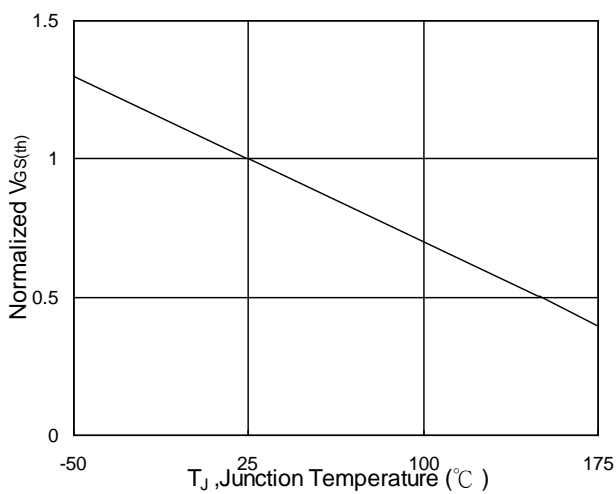
**Fig.2 On-Resistance vs. G-S Voltage**



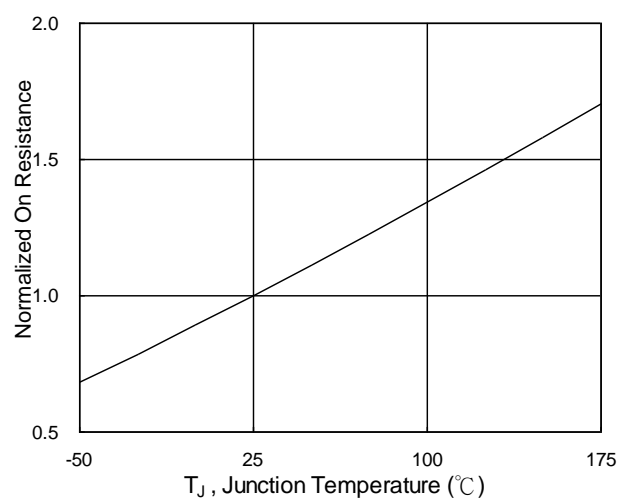
**Fig.3 Forward Characteristics of Reverse**



**Fig.4 Gate-Charge Characteristics**

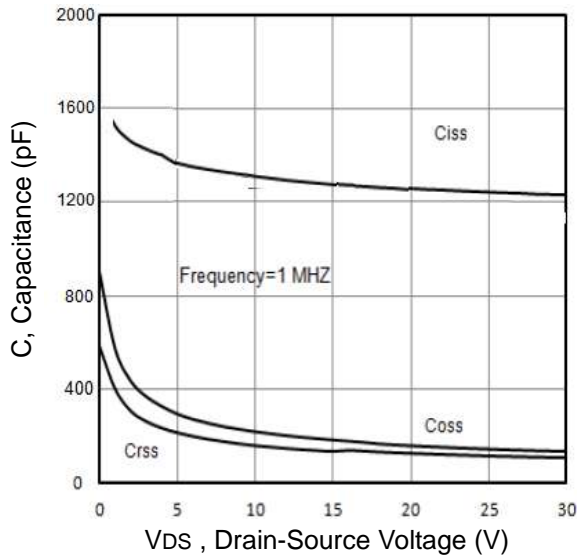


**Fig.5 Normalized  $V_{GS(th)}$  vs.  $T_J$**

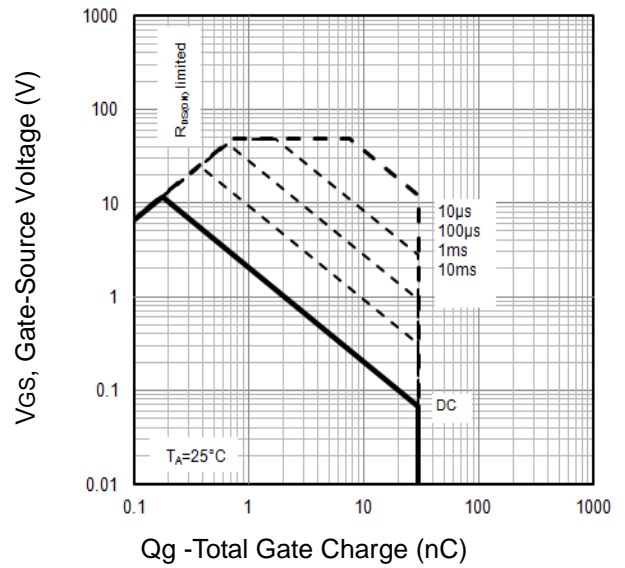


**Fig.6 Normalized  $R_{DS(on)}$  vs.  $T_J$**

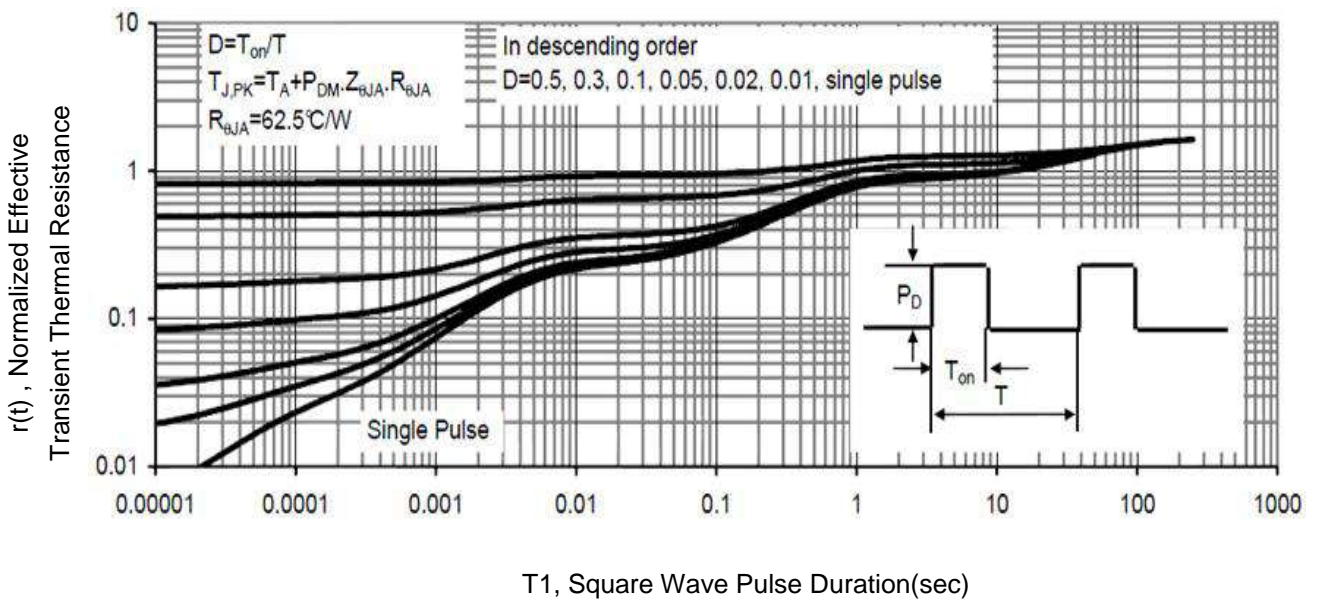
**Typical Characteristics**



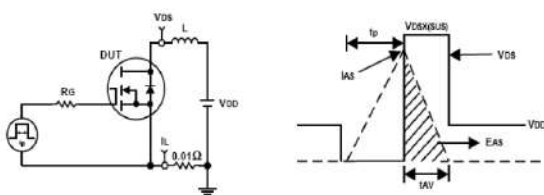
**Fig7.** Typical Capacitance Vs.Drain-Source Voltage



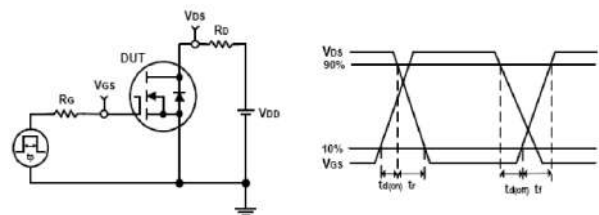
**Fig8.** Typical Gate Charge Vs.Gate-Source Voltage



**Fig9.** T1 ,Transient Thermal Response Curve



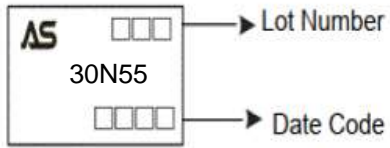
**Fig10.** Unclamped Inductive Test Circuit and waveforms

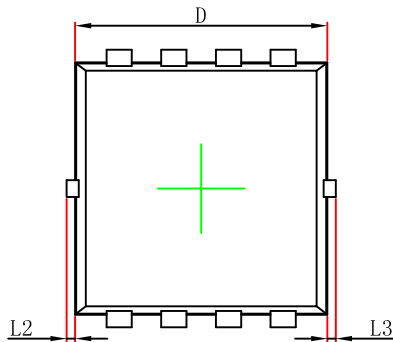


**Fig11.** Switching Time Test Circuit and waveforms

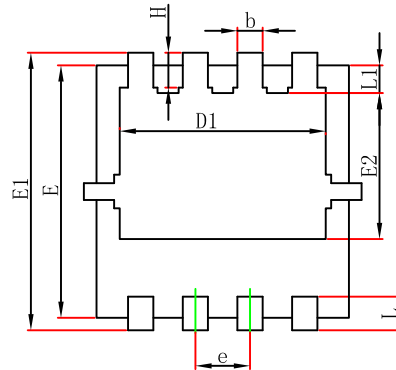
## Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
ASDM30N55E-R	30N55	DFN3.3*3.3-8	Tape&Reel	5000/Reel

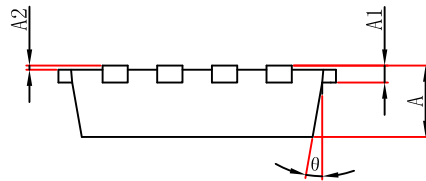
PACKAGE	MARKING
DFN3.3*3.3-8	

**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°

**IMPORTANT NOTICE**

ShenZhen Ascend Semiconductor incorporated MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

ShenZhen Ascend Semiconductor Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. ShenZhen Ascend Semiconductor Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does ShenZhen Ascend Semiconductor Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein in such applications shall assume .

all risks of such use and will agree to hold Ascendsemi Incorporated and all the companies whose products are represented on ShenZhen Ascend Semiconductor Incorporated website, harmless against all damages.

ShenZhen Ascend Semiconductor Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel. Should Customers purchase or use ShenZhen Ascend Semiconductor Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold ShenZhen Ascend Semiconductor Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

**[www.ascendsemi.com](http://www.ascendsemi.com)**