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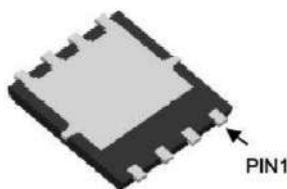
- Low Gate Charge
- Green Device Available
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- Advanced high cell density Trench technology

Applications

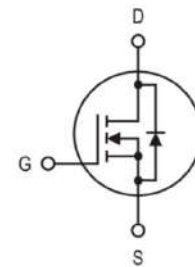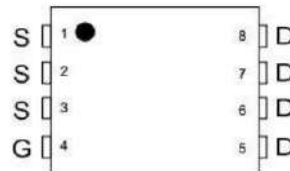- Power Management in Desktop Computer or DC/DC Converters.
- Isolated DC/DC Converters in Telecom and Industrial.

Product Summary

V_{DS}	30	V
$R_{DS(on),typ}$ V_{GS}=10V	4.5	mΩ
I_D	65	A

RoHs

DFN3.3*3.3-8L

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current, V_{GS} @ 10V[1]	32	A
I_D@T_C=100℃	Continuous Drain Current, V_{GS} @ 10V[1]	26	A
I_{DM}	Pulsed Drain Current[2]	100	A
EAS	Single Pulse Avalanche Energy[3]	61.3	mJ
I_{AS}	Avalanche Current	35	A
P_D@T_C=25℃	Total Power Dissipation[4]	25	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient [1]	---	60	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-Case[1]	---	5	℃/W

N-Channel Electrical Characteristics (T$_J$=25 ℃, unless otherwise noted)

| Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV$_{DSS}$	Drain-Source Breakdown Voltage	V$_{GS}$=0V , I$_D$=250uA	30	---	---	V
R$_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V$_{GS}$=10V , I$_D$=20A	---	4.5	5.2	mΩ
		V$_{GS}$=4.5V , I$_D$=15A	---	7.2	9	
V$_{GS(th)}$	Gate Threshold Voltage	V$_{GS}$=V$_{DS}$, I$_D$ =250uA	1.2	1.7	2.2	V
I$_{DSS}$	Drain-Source Leakage Current	V$_{DS}$=30V , V$_{GS}$=0V , T$_J$=25℃	---	---	1	uA
		V$_{DS}$=30V , V$_{GS}$=0V , T$_J$=55℃	---	---	5	
I$_{GSS}$	Gate-Source Leakage Current	V$_{GS}$=±20V , V$_{DS}$=0V	---	---	±100	nA
gfs	Forward Transconductance	V$_{DS}$=5V , I$_D$=20A	---	65	---	S
R$_g$	Gate Resistance	V$_{DS}$=0V , V$_{GS}$=0V , f=1MHz	0.8	1.7	2.6	Ω
Q$_g$	Total Gate Charge (4.5V)	V$_{DS}$=15V , V$_{GS}$=10V , I$_D$=20A	---	9	---	nC
Q$_{gs}$	Gate-Source Charge		---	2.8	---	
Q$_{gd}$	Gate-Drain Charge		---	3.6	---	
T$_{d(on)}$	Turn-On Delay Time	V$_{DD}$=15V , V$_{GS}$=10V , R$_G$=3Ω I$_D$=20A	---	7	---	ns
T$_r$	Rise Time		---	18.8	---	
T$_{d(off)}$	Turn-Off Delay Time		---	19.5	---	
T$_f$	Fall Time		---	3.4	---	
C$_{iss}$	Input Capacitance	V$_{DS}$=15V , V$_{GS}$=0V , f=1MHz	---	1113	---	pF
C$_{oss}$	Output Capacitance		---	436	---	
C$_{rss}$	Reverse Transfer Capacitance		---	55	---	

Diode Characteristics

| Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I$_S$	Continuous Source Current[1,5]	V$_G$=V$_D$=0V , Force Current	---	---	20	A
V$_{SD}$	Diode Forward Voltage[2]	V$_{GS}$=0V , I$_S$=1A , T$_J$=25℃	---	---	1	V

Note :

1.The data tested by surface mounted on a 1 inch[2] FR-4 board with 2OZ copper.

2.The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%

3.The EAS data shows Max. rating . The test condition is V$_{DD}$=25V,V$_{GS}$=10V,L=0.1mH,I$_{AS}$=35A

4.The power dissipation is limited by 150℃ junction temperature

5.The data is theoretically the same as I$_D$ and I$_{DM}$, in real applications , should be limited by total power dissipation.
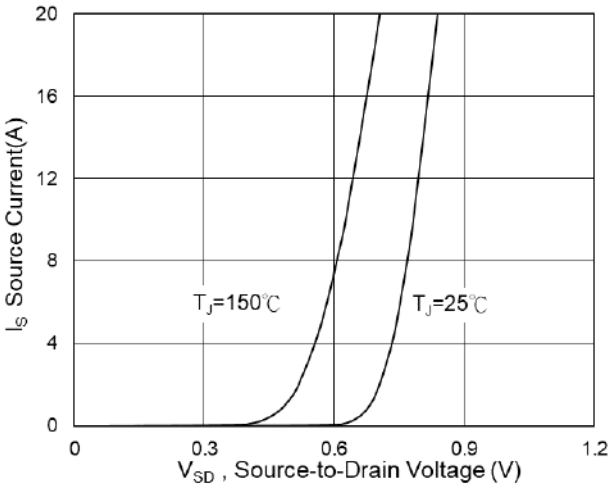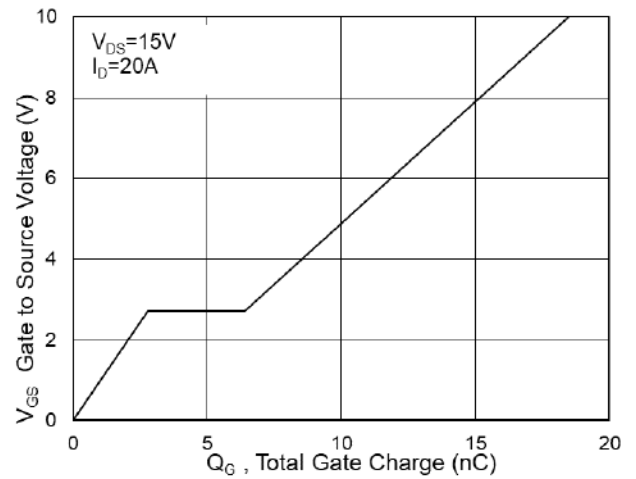
N- Channel Typical Characteristics
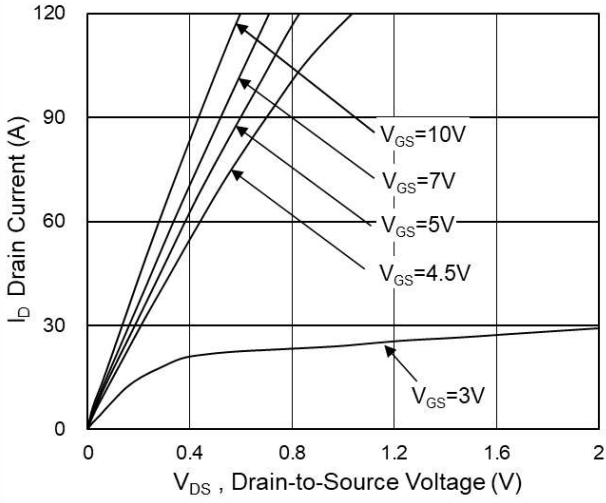
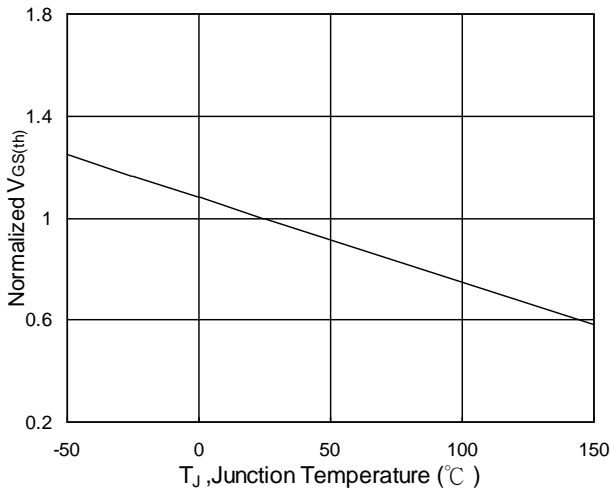**Fig.1 Typical Output Characteristics**
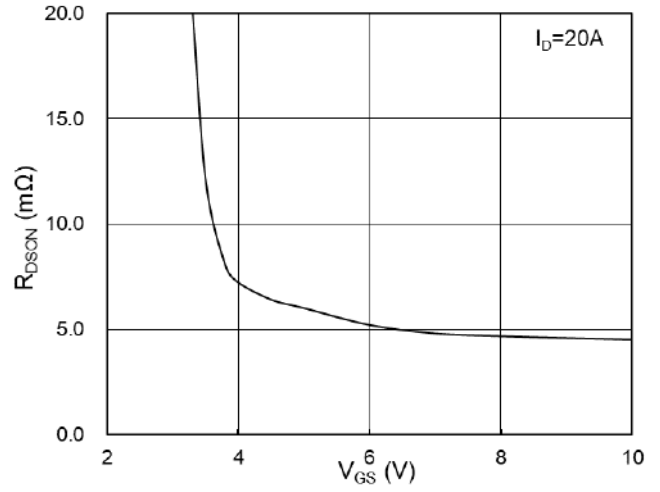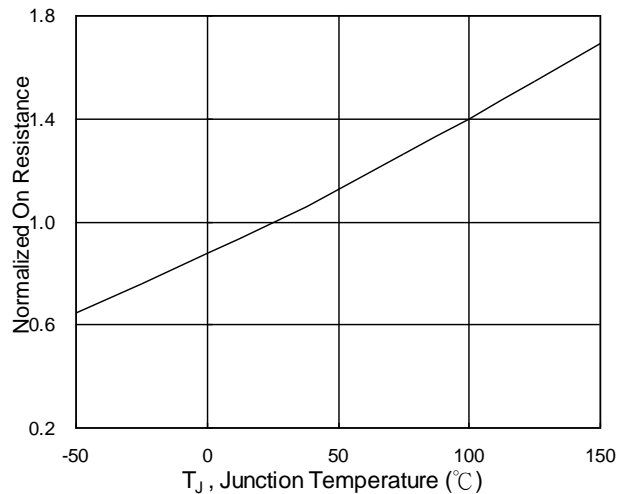

Fig.2 On-Resistance vs G-S Voltage

Fig.3 Source Drain Forward Characteristics

Fig.4 Gate-Charge Characteristics

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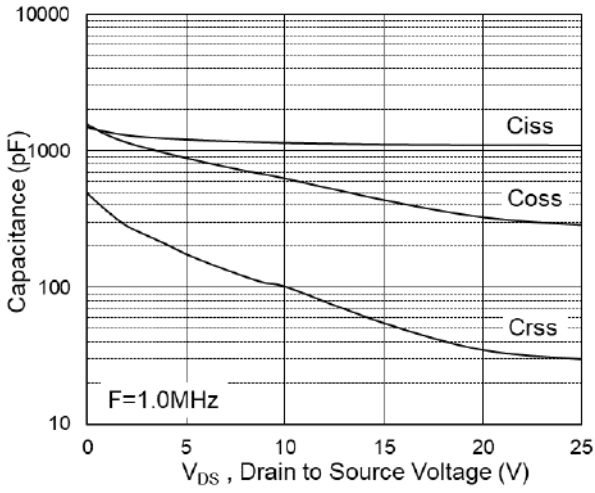

Fig.6 Normalized R_{DSON} vs T_J
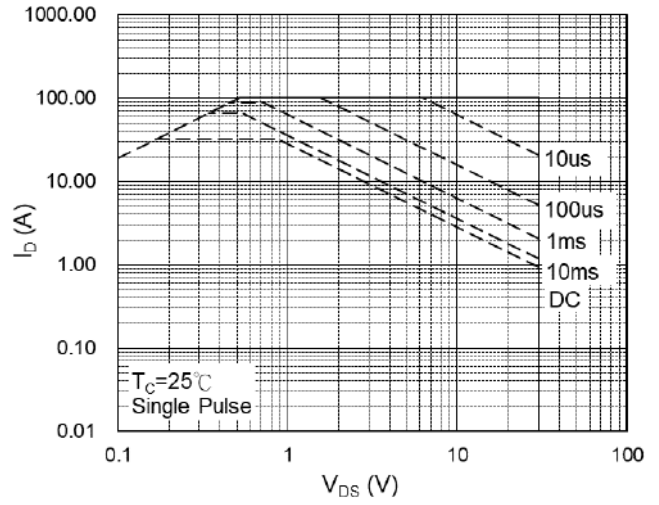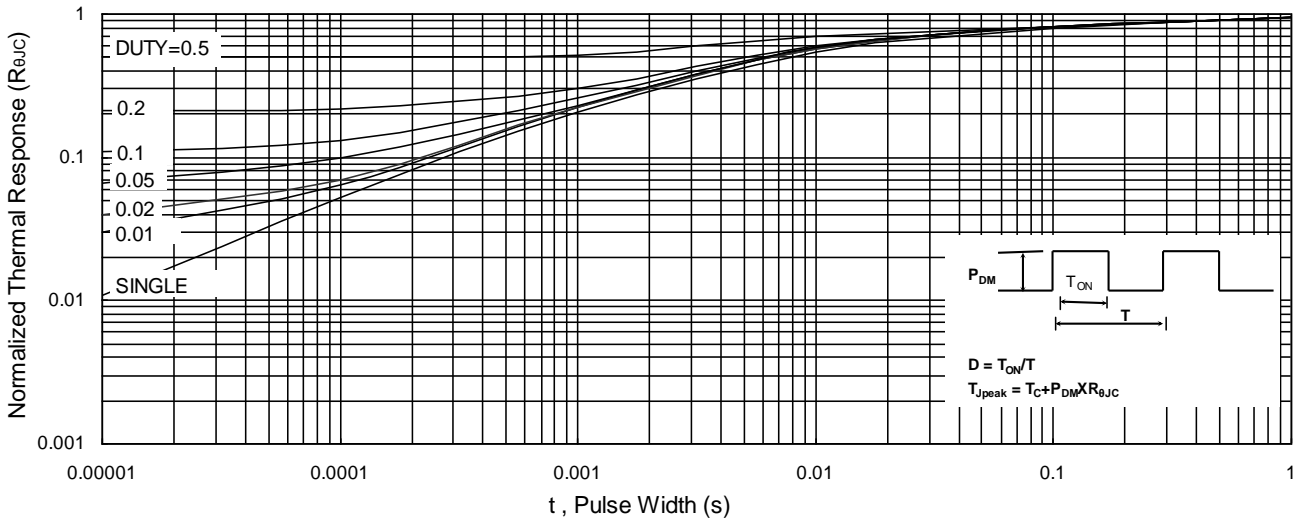
Fig.7 Capacitance

Fig.8 Safe Operating Area

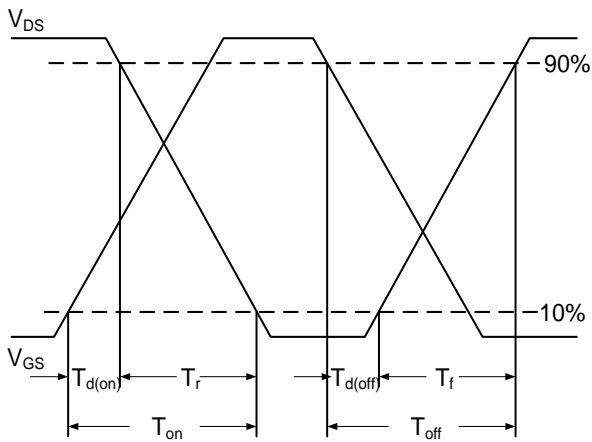Fig.9 Normalized Maximum Transient Thermal Impedance
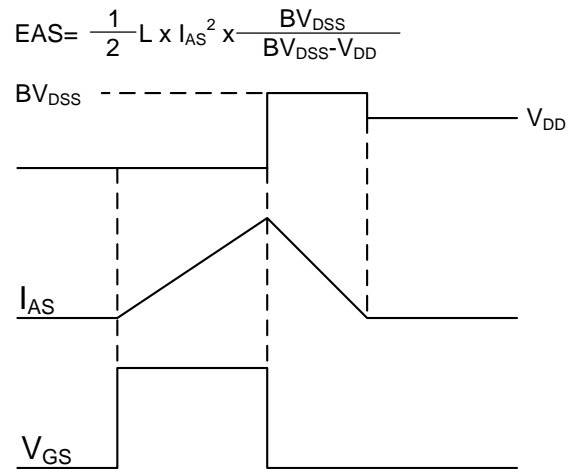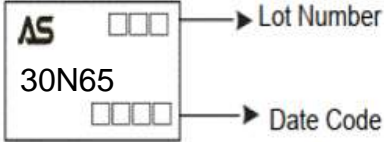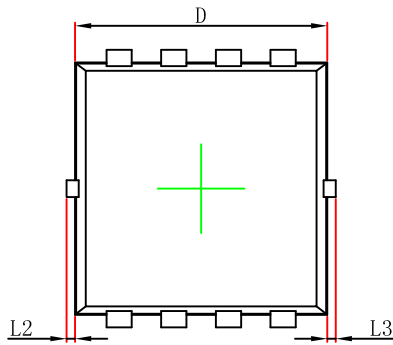

Fig.10 Switching Time Waveform

$$EAS = \frac{1}{2} L \times I_{AS}^2 \times \frac{BV_{DSS}}{BV_{DSS} - V_{DD}}$$

Fig.11 Unclamped Inductive Switching Waveform

Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
ASDM30N65E-R	30N65	DFN3.3*3.3-8	Tape&Reel	5000

PACKAGE	MARKING
DFN3.3*3.3-8	

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

Top View
[顶视图]
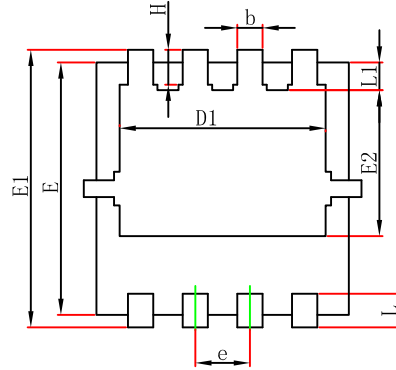
Bottom View
[背视图]
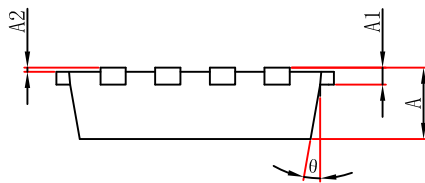
Side View
[侧视图]

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