



Features

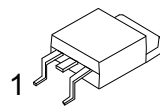
- 100% EAS Guaranteed
 - Green Device Available
 - Super Low Gate Charge
 - Excellent CdV/dt effect decline
- Advanced high cell density Trench technology

Application

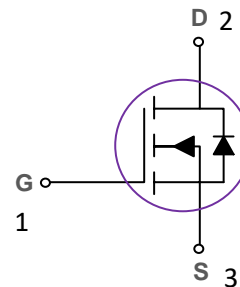
- Lithium-Ion Secondary Batteries
- Load Switch
- DC-DC converters and Off-line UPS
- Motor Control

Product Summary

V_{DS}	30	V
$R_{DS(on), Typ} @ V_{GS}=10V$	3.3	m Ω
I_D	100	A



TO-252



Absolute Maximum Ratings

Symbol	Parameter	Rating		Units
		10s	Steady State	
V_{DS}	Drain-Source Voltage	30		V
V_{GS}	Gate-Source Voltage	± 20		V
$I_D @ T_C=25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V^{1,6}$	100		A
$I_D @ T_C=100^\circ C$	Continuous Drain Current, $V_{GS} @ 10V^{1,6}$	65		A
$I_D @ T_A=25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V^1$	27.3	17.3	A
$I_D @ T_A=70^\circ C$	Continuous Drain Current, $V_{GS} @ 10V^1$	21.8	14	A
I_{DM}	Pulsed Drain Current ²	400		A
EAS	Single Pulse Avalanche Energy ³	175		mJ
I_{AS}	Avalanche Current	53		A
$P_D @ T_C=25^\circ C$	Total Power Dissipation ⁴	79		W
$P_D @ T_A=25^\circ C$	Total Power Dissipation ⁴	5	2	W
T_{STG}	Storage Temperature Range	-55 to 175		$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 175		$^\circ C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient ¹	---	62	$^\circ C/W$
$R_{\theta JA}$	Thermal Resistance Junction-Ambient ¹ ($t \leq 10s$)	---	25	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-Case ¹	---	1.8	$^\circ C/W$

Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	30	---	---	V
ΔBV _{DSS} /ΔT _J	BVDSS Temperature Coefficient	Reference to 25°C, I _D =1mA	---	0.0213	---	V/°C
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V, I _D =30A	---	3.3	4	mΩ
		V _{GS} =4.5V, I _D =15A	---	5.0	6	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	1.2	1.6	2.5	V
ΔV _{GS(th)}	V _{GS(th)} Temperature Coefficient		---	5.73	---	mV/°C
I _{DSS}	Drain-Source Leakage Current	V _{DS} =24V, V _{GS} =0V, T _J =25°C	---	---	1	uA
		V _{DS} =24V, V _{GS} =0V, T _J =55°C	---	---	5	
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA
gfs	Forward Transconductance	V _{DS} =5V, I _D =30A	---	26.5	---	S

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current ^{1,5}	V _G =V _D =0V, Force Current	---	---	100	A
I _{SM}	Pulsed Source Current ^{2,5}		---	---	400	A
V _{SD}	Diode Forward Voltage ²	V _{GS} =0V, I _S =1A, T _J =25°C	---	---	1	V

Note :

- 1.The data tested by surface mounted on a 1 inch² 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}=53A
- 4.The power dissipation is limited by 175°C 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.
- 6.Package limitation current is 85A.



Typical Characteristics

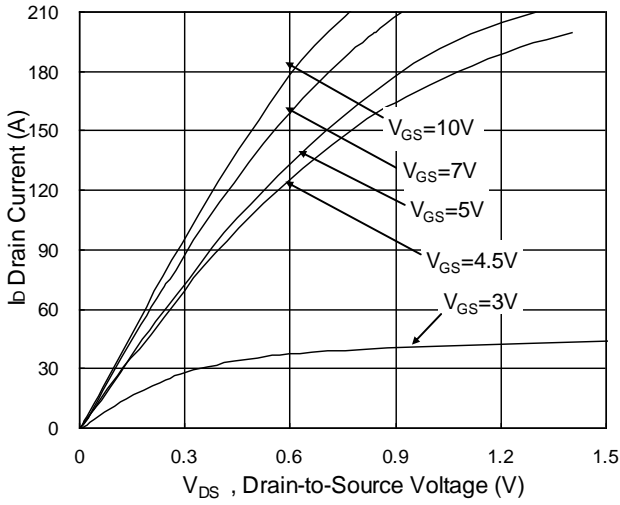


Fig.1 Typical Output Characteristics

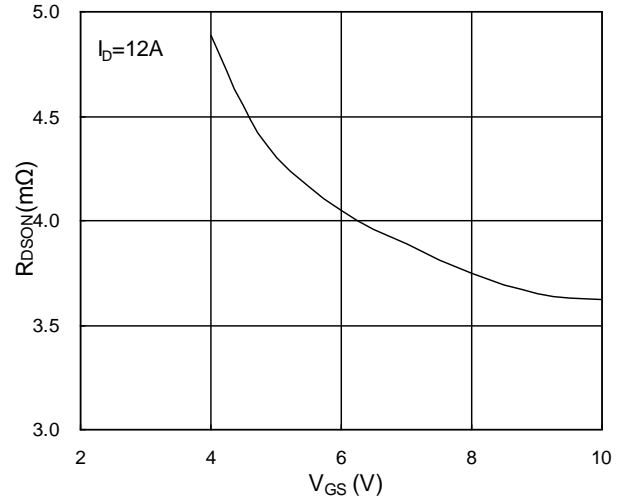


Fig.2 On-Resistance vs. G-S Voltage

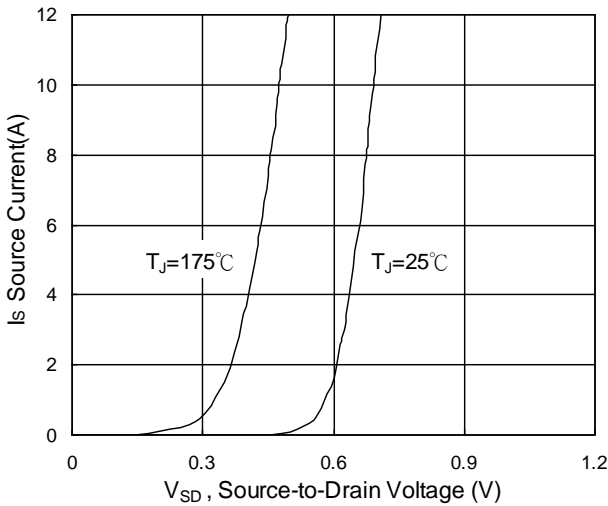


Fig.3 Forward Characteristics of Reverse

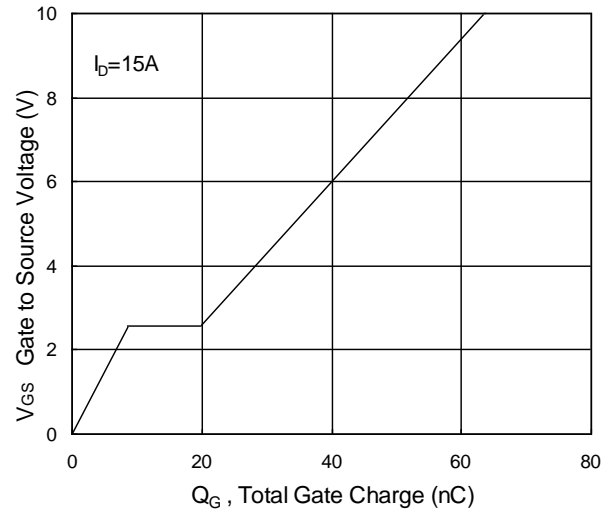


Fig.4 Gate-charge Characteristics

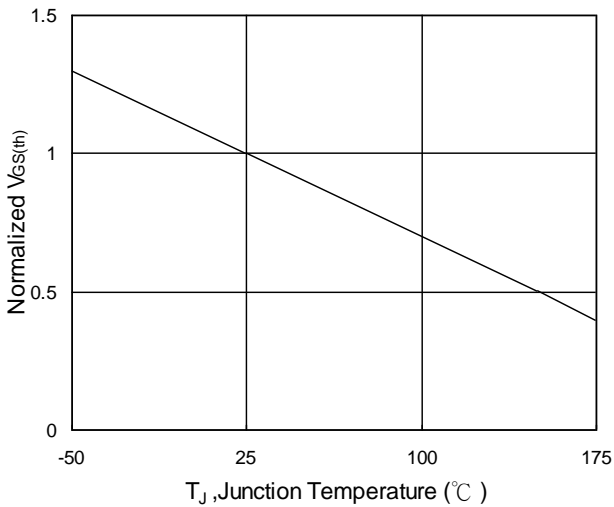


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

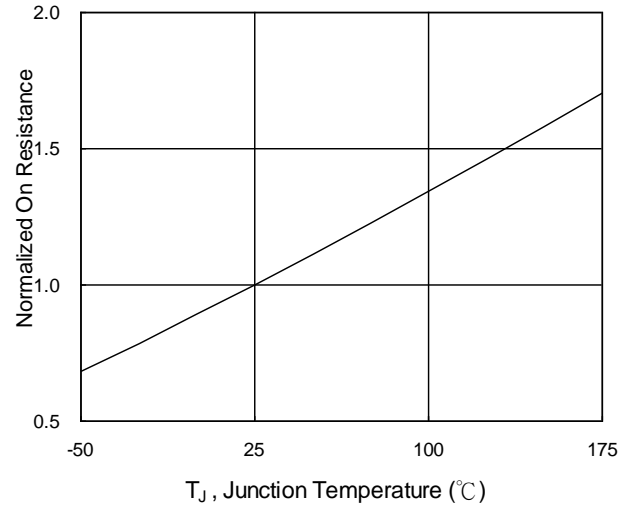


Fig.6 Normalized $R_{DS(on)}$ vs. T_J

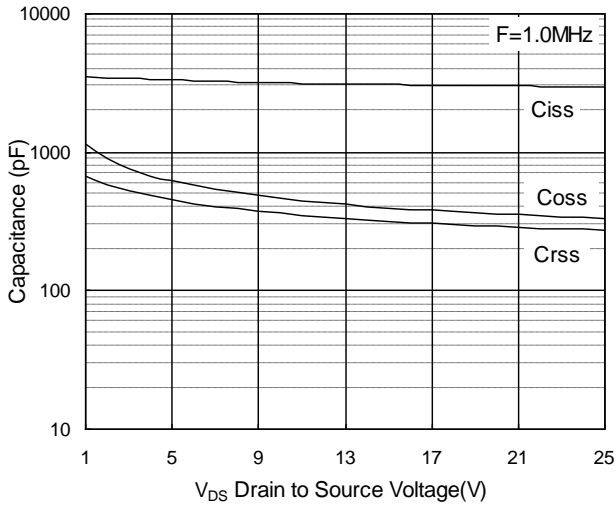


Fig.7 Capacitance

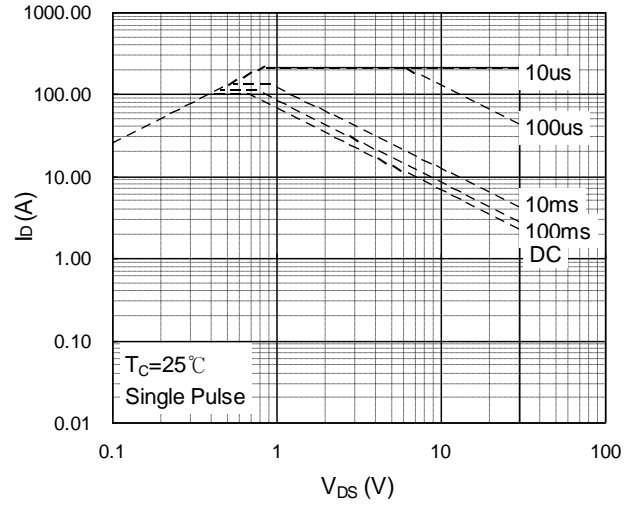


Fig.8 Safe Operating Area

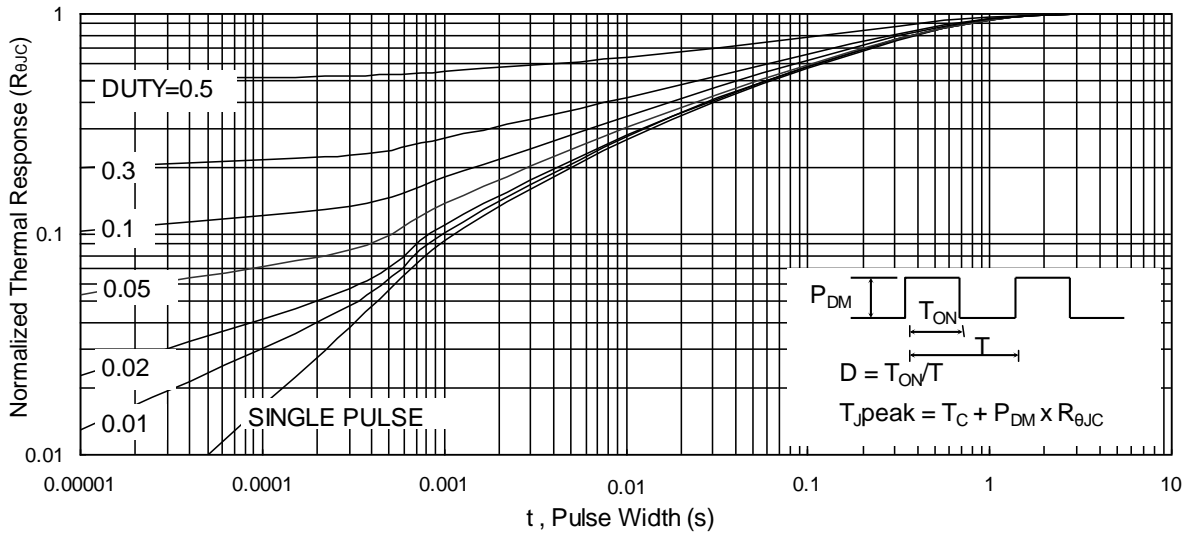


Fig.9 Normalized Maximum Transient Thermal Impedance

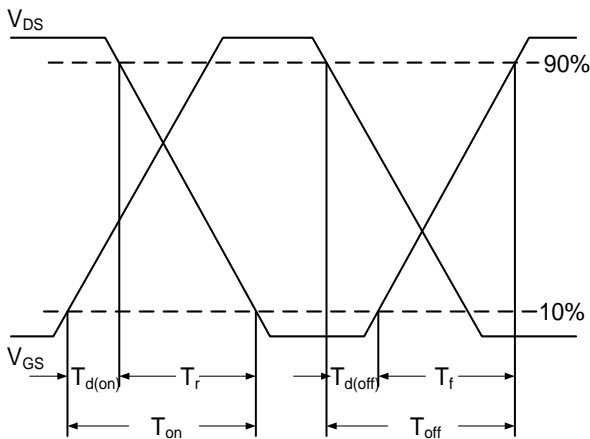


Fig.10 Switching Time Waveform

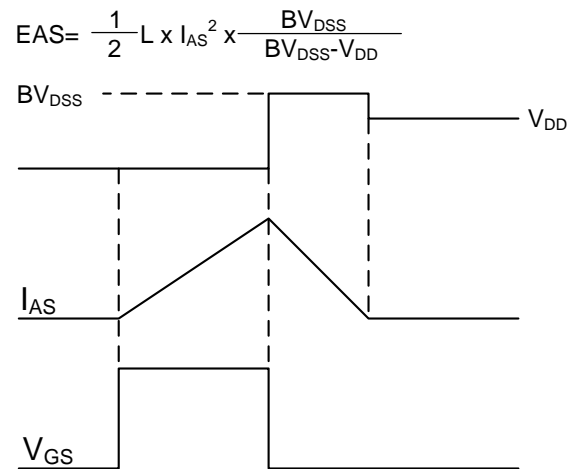
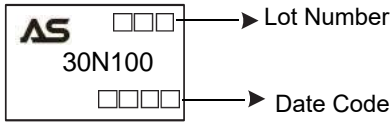


Fig.11 Unclamped Inductive Switching Waveform

Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
ASDM30N100KQ-R	30N100	TO-252	Tape&Reel	2500/Reel

PACKAGE	MARKING
TO-252	 <p>AS □□□ → Lot Number 30N100 □□□□ → Date Code</p>

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