

Features

- Advanced Trench MOS Technology
- Low Gate Charge
- LOW $R_{DS(ON)}$
- 100% EAS Guaranteed
- Green Device Available

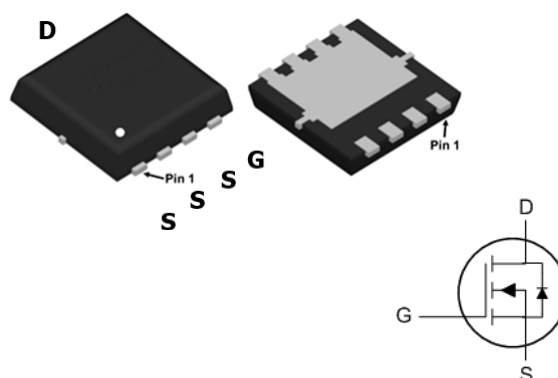
Product Summary

BVDSS	RDSON	ID
30V	3.8mΩ	40

Applications

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

DFN 3X3 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10V^{1,6}$	40	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10V^{1,6}$	40	A
I_{DM}	Pulsed Drain Current ²	100	A
EAS	Single Pulse Avalanche Energy ³	140	mJ
I_{AS}	Avalanche Current	53	A
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation ⁴	26	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient ¹	---	62	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction-Case ¹	---	4.8	$^\circ\text{C/W}$

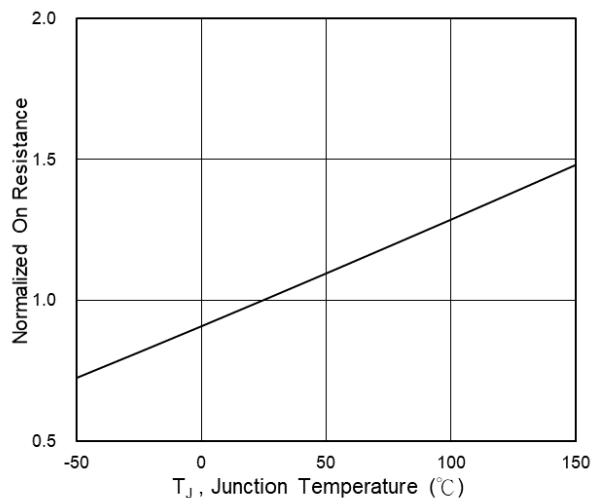
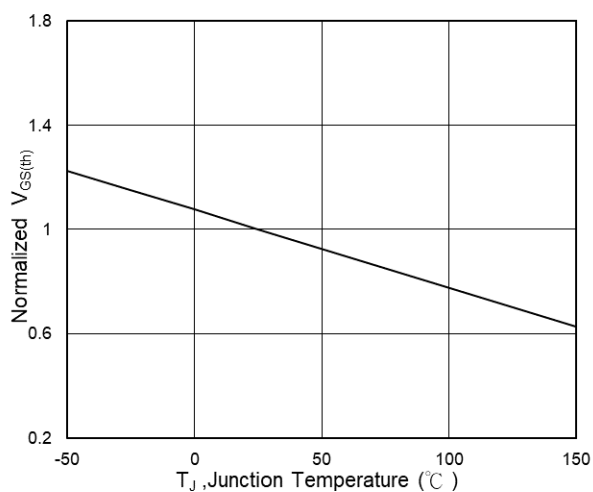
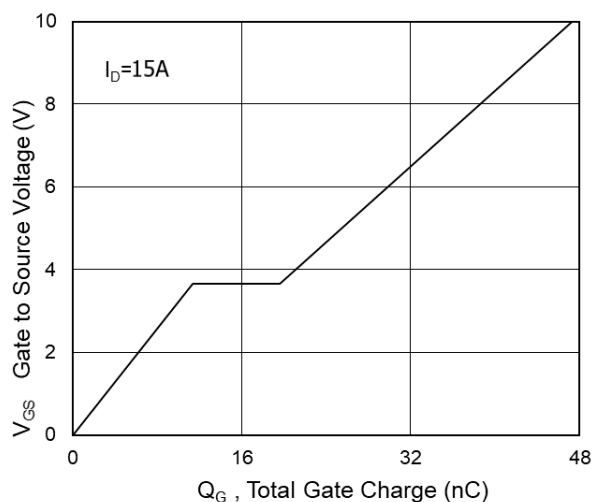
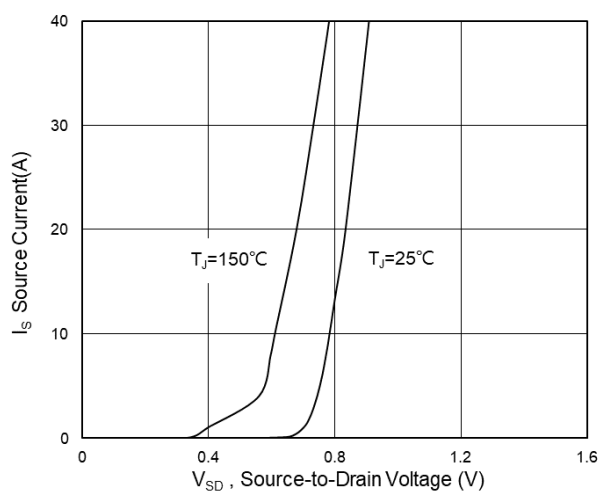
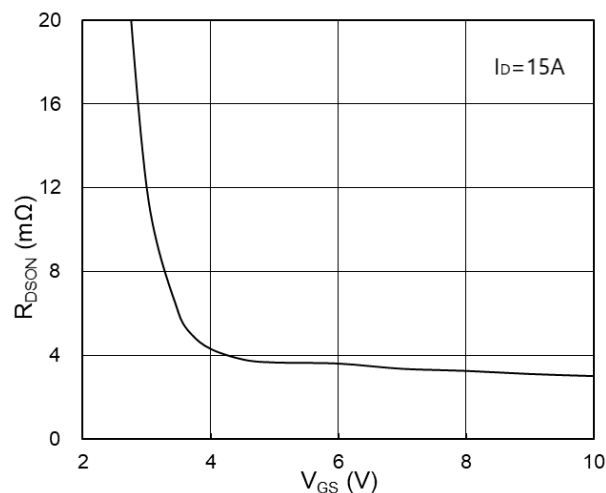
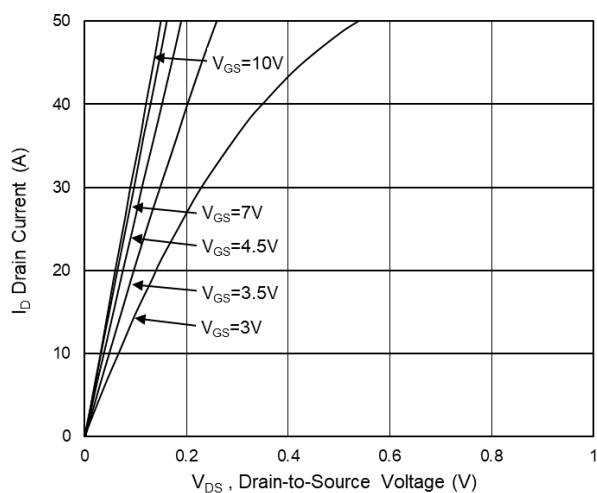
Electrical Characteristics ($T_J=25^\circ\text{C}$, unless otherwise noted)

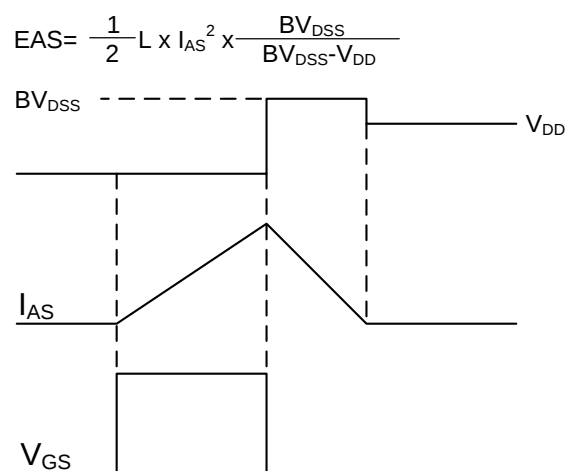
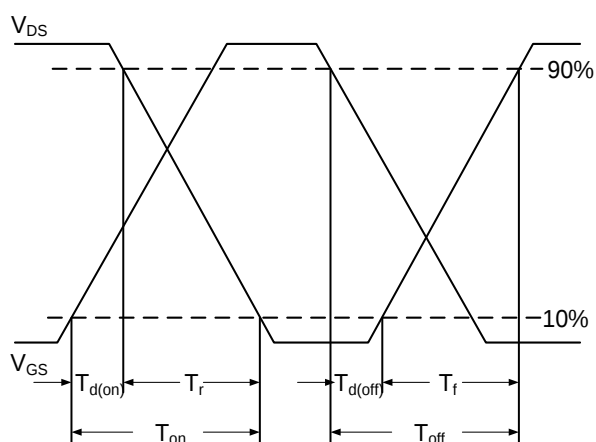
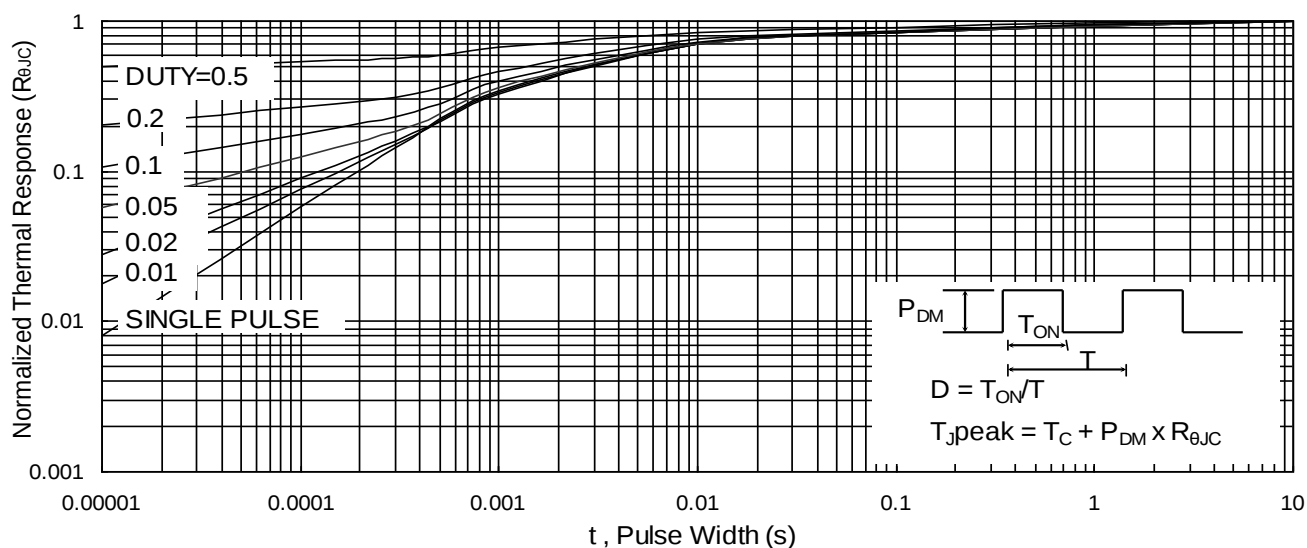
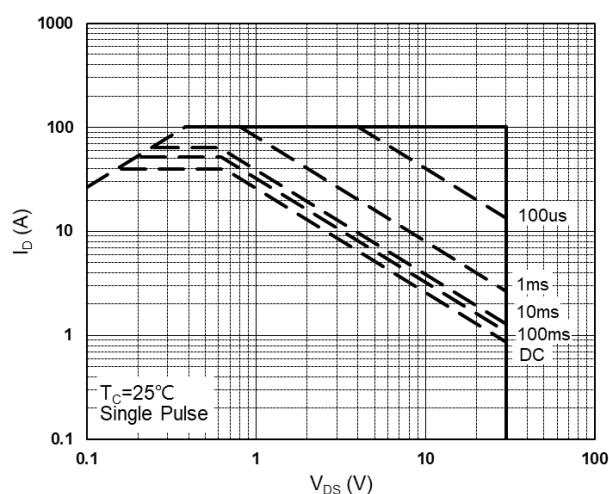
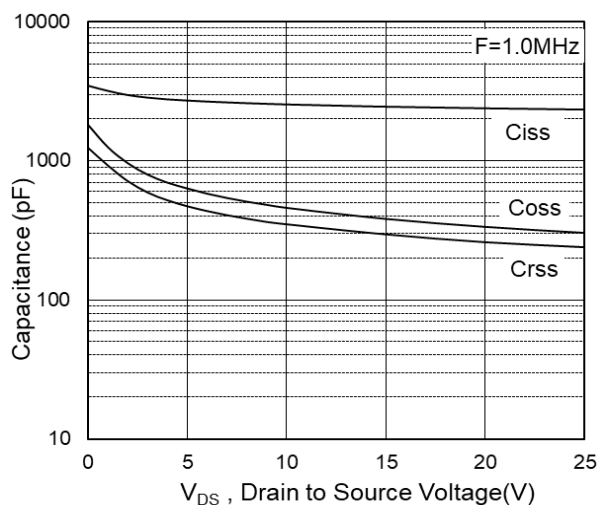
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250uA	30	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V , I _D =15	---	---	3.8	mΩ
		V _{GS} =4.5V , I _D =12	---	---	5.8	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	1.2	---	2.5	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =30V , V _{GS} =0V , T _J =25°C	---	---	1	uA
		V _{DS} =30V , V _{GS} =0V , T _J =55°C	---	---	5	
I _{GSS}	Gate-Source Leakage Current	V _{GS} =± 20V , V _{DS} =0V	---	---	± 100	nA
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	---	1.7	---	Ω
Q _g	Total Gate Charge (4.5V)	V _{DS} =20V , V _{GS} =4.5V , I _D =15A	---	23.4	---	nC
Q _{gs}	Gate-Source Charge		---	11.4	---	
Q _{gd}	Gate-Drain Charge		---	8.2	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =15V , V _{GS} =10V , R _G =1.5Ω I _D =15A	---	12.6	---	ns
T _r	Rise Time		---	9.6	---	
T _{d(off)}	Turn-Off Delay Time		---	55	---	
T _f	Fall Time		---	5.6	---	
C _{iss}	Input Capacitance	V _{DS} =15V , V _{GS} =0V , f=1MHz	---	2461	---	pF
C _{oss}	Output Capacitance		---	383	---	
C _{rss}	Reverse Transfer Capacitance		---	261	---	
Diode Characteristics						
I _S	Continuous Source Current ^{1,5}	V _G =V _D =0V , Force Current	---	---	40	A
V _{SD}	Diode Forward Voltage ²	V _{GS} =0V , I _S =1A , T _J =25°C	---	---	1	V

Note :

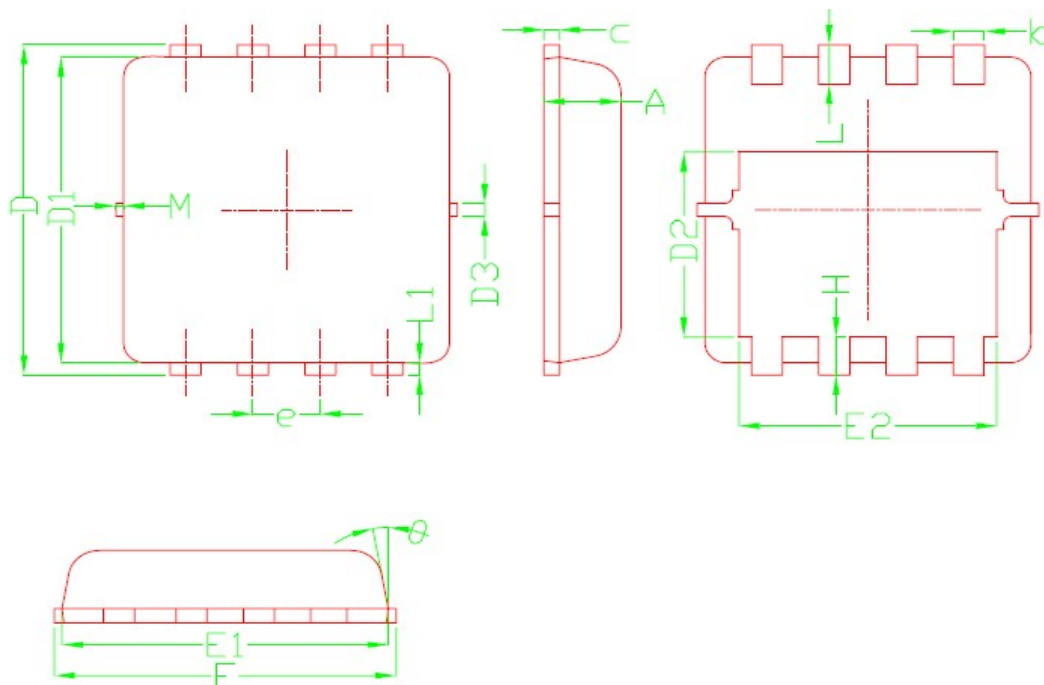
- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.
- 2.The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
- 3.The EAS data shows Max. rating . The test condition is $V_{DD}=25V$, $V_{GS}=10V$, $L=0.1mH$, $I_{AS}=53A$
- 4.The power dissipation is limited by 150°C junction temperature
- 5.The data is theoretically the same as I_D and I_S , in real applications , should be limited by total power dissipation.
- 6.The maximum current rating is package limited.

Typical Characteristics





DFN3x3-8L Package Outline



SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.70	0.85	0.027	0.034
b	0.20	0.40	0.007	0.016
c	0.10	0.25	0.004	0.010
D	3.15	3.45	0.124	0.136
D1	2.90	3.20	0.114	0.126
D2	1.54	1.98	0.060	0.080
D3	0.10	0.30	0.004	0.012
E	3.15	3.45	0.124	0.136
E1	3.00	3.25	0.118	0.128
E2	2.29	2.65	0.090	0.104
e	0.65 BSC		0.025 BSC	
H	0.28	0.65	0.011	0.026
θ	0°	14°	0°	14°
L	0.30	0.50	0.012	0.020
L1	0.13		0.005	
M	---	0.15	---	0.006

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