

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

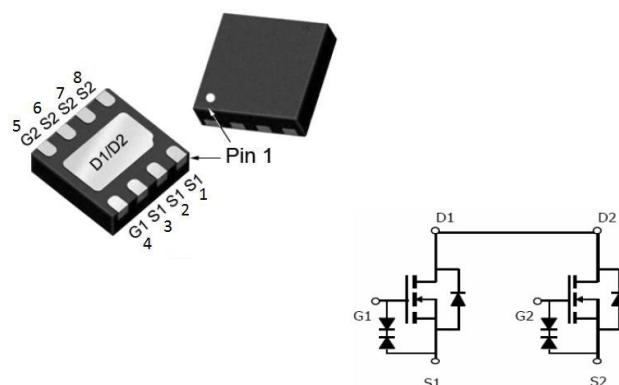
Product Summary

BVDSS	RDSON	ID
20V	5.8mΩ	25A

DFN2030-8L Pin Configurations

FEATURE

- TrenchFET Power MOSFET
- Excellent $R_{DS(on)}$
- Low Gate Charge
- High Power and Current Handling Capability
- Surface Mount Package
- ESD Rating:2000V HBM

ABSOLUTE MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	25	A
Pulsed Drain Current (note 1)	I_{DM}	100	A
Thermal Resistance from Junction to Ambient (note 2)	$R_{\theta JA}$	38	$^{\circ}\text{C/W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~+150	$^{\circ}\text{C}$
Lead Temperature for Soldering Purposes(1/8" from case for 10 s)	T_L	260	$^{\circ}\text{C}$

MOSFET ELECTRICAL CHARACTERISTICS

T_a =25 °C unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC CHARACTERICTISCS						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =19V, V _{GS} = 0V			1	uA
Gate-body leakage current	I _{GSS}	V _{GS} =±12V, V _{DS} = 0V			±7	uA
Gate threshold voltage (note 3)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.5	0.7	1.0	V
Drain-source on-resistance (note 3)	R _{DS(on)}	V _{GS} =4.5V, I _D =8.0A		5.8	6.6	mΩ
		V _{GS} =2.5V, I _D =6.0A		6.8	9.5	mΩ
Forward tranconductance (note 3)	g _{FS}	V _{DS} =5V, I _D =4A		10		S
Diode forward voltage (note 3)	V _{SD}	I _S =1.50A, V _{GS} = 0V			1.0	V
DYNAMIC CHARACTERICTISCS (note4)						
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f =1MHz		1827		pF
Output Capacitance	C _{oss}			241.5		pF
Reverse Transfer Capacitance	C _{rss}			225.4		pF
SWITCHING CHARACTERICTISCS (note 4)						
Turn-on delay time	t _{d(on)}	V _{GS} =4.5V, V _{DS} =10V, I _D =6A R _{GEN} =3Ω		6.4		ns
Turn-on rise time	t _r			24.5		ns
Turn-off delay time	t _{d(off)}			260.4		ns
Turn-off fall time	t _f			143		ns
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =4.5V, I _D =6A		25.2		nC
Gate-Source Charge	Q _{gs}			2.24		nC
Gate-Drain Charge	Q _{gd}			9.1		nC

Notes :

- 1.Repetitive rating: Pulse width limited by maximum junction temperature
- 2.Surface Mounted on FR4 board, t ≤10 sec.
3. Pulse test : Pulse width ≤300μs, duty cycle ≤2%.
4. Guaranteed by design, not subject to production.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTIC

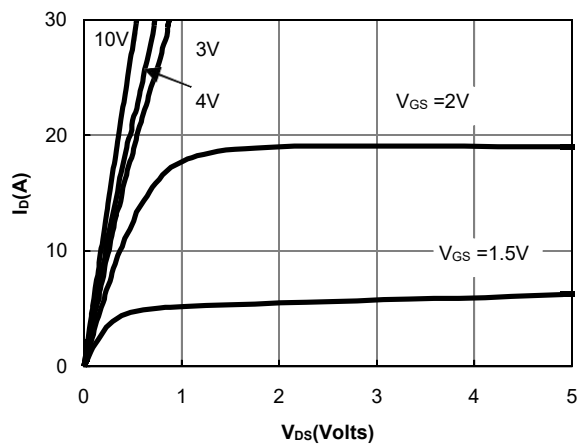


Figure 1: On-Regions Characteristic CS

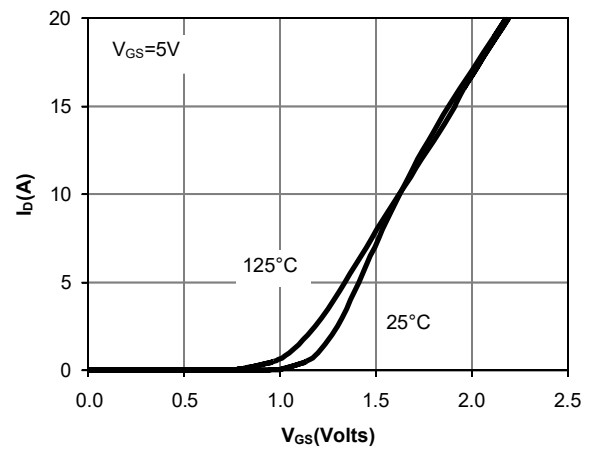


Figure 2: Transfer Characteristics

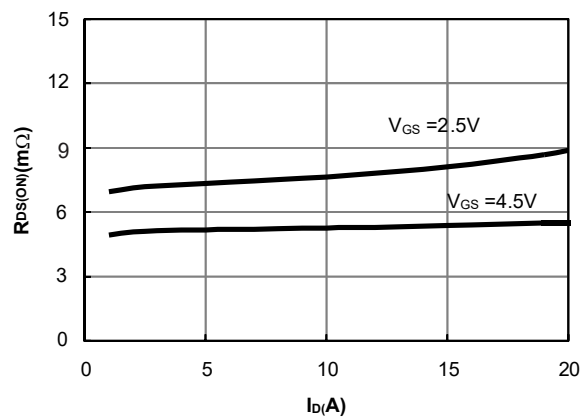


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

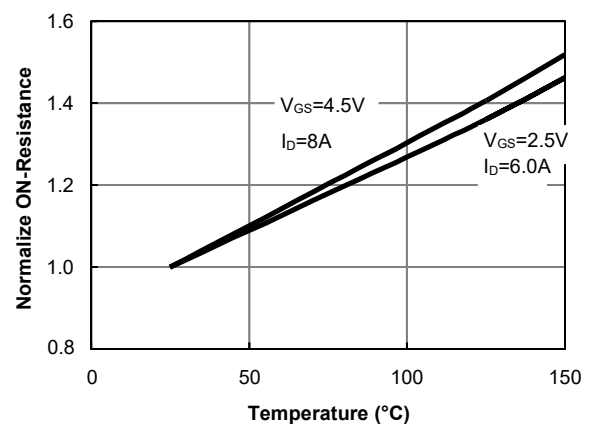


Figure 4: On-Resistance vs. Junction Temperature

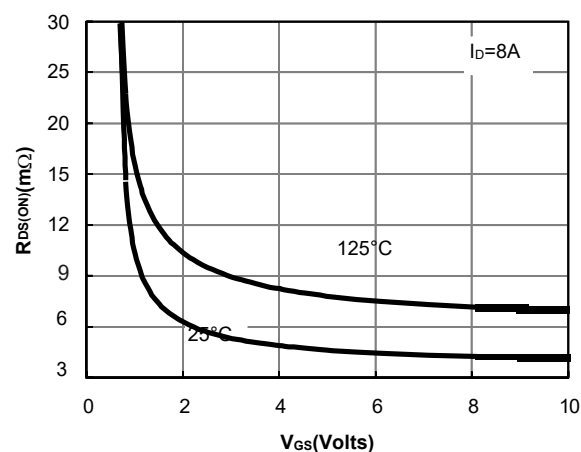


Figure 5: On-Resistance vs. Gate-Source Voltage

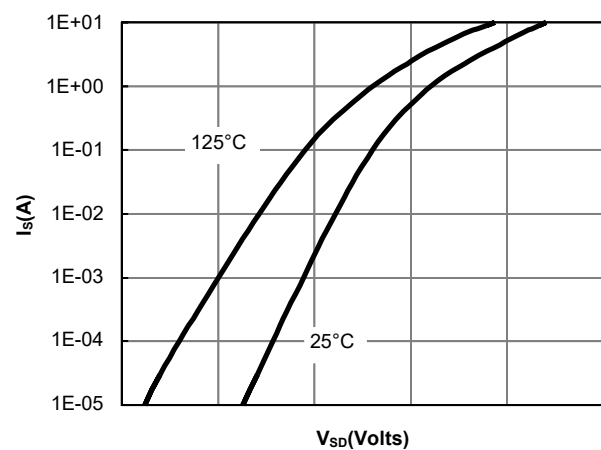


Figure 6: Body-Diode Characteristics

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTIC

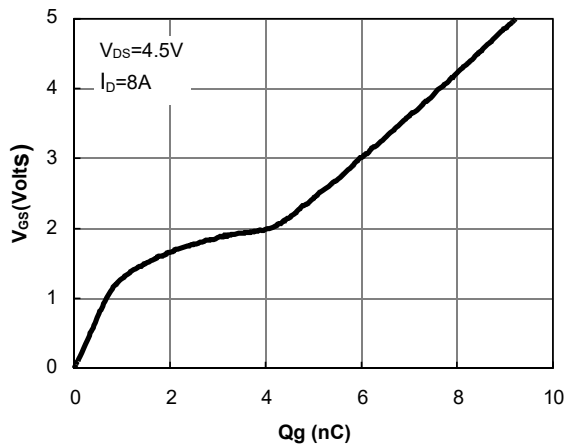


Figure 7: Gate-Charge Characteristics

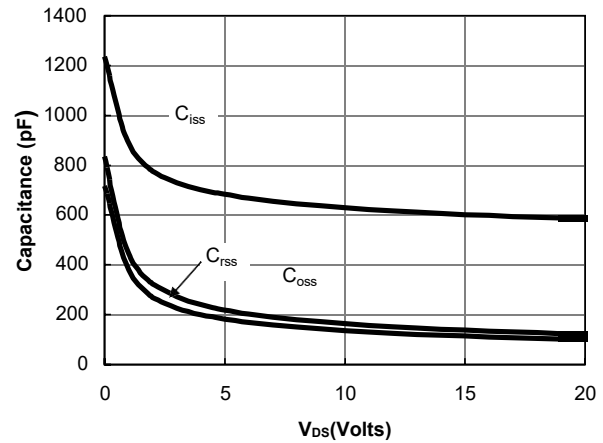


Figure 8: Capacitance Characteristics

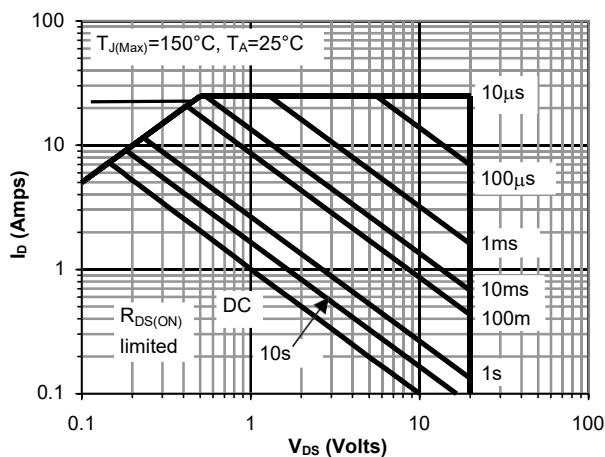


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

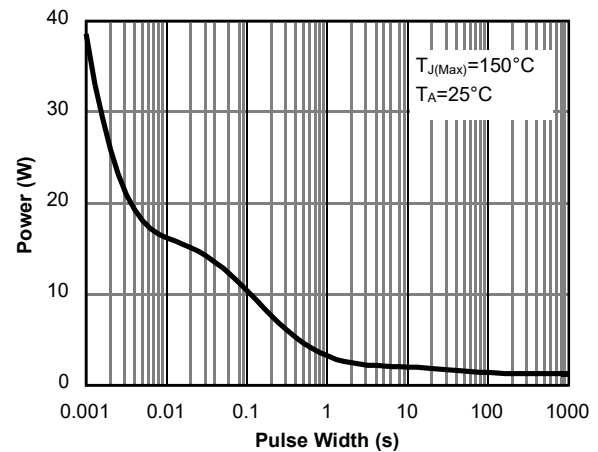


Figure 10: Single Pulse Power Rating Junction-to-Ambient

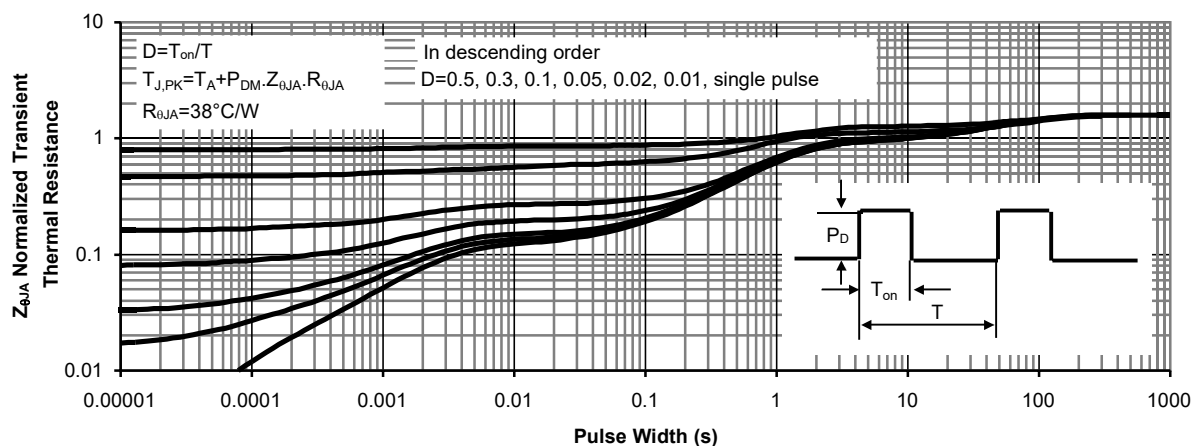
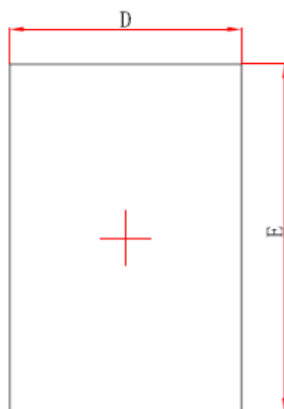
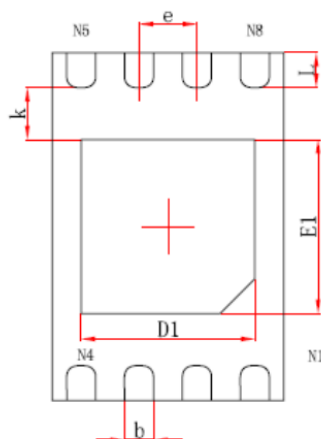


Figure 11: Normalized Maximum Transient Thermal Impedance

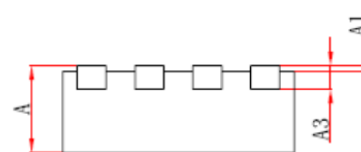
DFN2030-8L Package Outline Data



Top View



Bottom View



Side View

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.924	2.076	0.076	0.082
E	2.924	3.076	0.115	0.121
D1	1.400	1.600	0.055	0.063
E1	1.400	1.600	0.055	0.063
k	0.200MIN.		0.008MIN.	
b	0.200	0.300	0.008	0.012
e	0.500TYP.		0.020TYP.	
L	0.224	0.376	0.009	0.015