

**Features**

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

**Product Summary**



$V_{DS}$	-40	V
$I_D$	-50	A
$R_{DS(ON)}$ (at $V_{GS}=-10V$ )	10	m $\Omega$
$R_{DS(ON)}$ (at $V_{GS}=-4.5V$ )	15	m $\Omega$

**Applications**

- High Frequency Point-of-Load, Synchronous Buck Converter
- Networking DC-DC Power System
- Load Switch

**DFN3X3-8L Top View**

**Top View**

**Absolute Maximum Ratings( $T_C=25^\circ C$ , unless otherwise noted)**

Parameter	Symbol	Rating	Units
Drain-Source Voltage	$V_{DS}$	-20	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current <sup>1</sup>	$I_D@T_C=25^\circ C$	-50	A
Continuous Drain Current <sup>1</sup>	$I_D@T_C=100^\circ C$	-32	A
Pulsed Drain Current <sup>2</sup>	$I_{DM}$	-204	A
Single Pulse Avalanche Energy <sup>3</sup>	EAS	100	mJ
Avalanche Current	$I_{AS}$	35	A
Total Power Dissipation <sup>4</sup>	$P_D$	52	W
Storage Temperature Range	$T_{STG}$	-55 to 150	$^\circ C$
Operating Junction Temperature Range	$T_J$	-55 to 150	$^\circ C$

**Thermal Characteristics**

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance Junction-Ambient <sup>1</sup>	$R_{\theta JA}$	---	67	$^\circ C/W$
Thermal Resistance Junction-Case <sup>1</sup>	$R_{\theta JC}$	---	2.4	$^\circ C/W$

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-40	---	---	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-20A$	---	7.8	10	$m\Omega$
		$V_{GS}=-4.5V, I_D=-15A$	---	11	15	$m\Omega$
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=-250\mu A$	-1.2	---	-2.5	V
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS}=-32V, V_{GS}=0V$	---	---	-1	$\mu A$
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	$\pm 100$	nA
Total Gate Charge	$Q_g$	$V_{DS}=-20V, V_{GS}=-10V, I_D=-20A$	---	72	---	nC
Gate-Source Charge	$Q_{gs}$		---	11	---	
Gate-Drain Charge	$Q_{gd}$		---	17	---	
Turn-On Delay Time	$T_{d(on)}$	$V_{DS}=-20V, V_{GS}=-10V, R_G=6\Omega, I_D=-20A$	---	15	---	ns
Rise Time	$T_r$		---	24	---	
Turn-Off Delay Time	$T_{d(off)}$		---	130	---	
Fall Time	$T_f$		---	54	---	
Input Capacitance	$C_{iss}$	$V_{DS}=-20V, V_{GS}=0V, f=1\text{MHz}$	---	3550	---	pF
Output Capacitance	$C_{oss}$		---	260	---	
Reverse Transfer Capacitance	$C_{rss}$		---	210	---	

**Drain-Source Diode Characteristics**

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Continuous Source Current <sup>1</sup>	$I_S$		---	---	-43	A
Diode Forward Voltage <sup>2</sup>	$V_{SD}$	$V_{GS}=0V, I_S=-20A, T_J=25^\circ\text{C}$	---	---	-1.2	V
Reverse Recovery Time	$t_{rr}$	$I_F=-20A, di/dt=100A/\mu s, T_J=25^\circ\text{C}$	---	20	---	nS
Reverse Recovery Charge	$Q_{rr}$		---	16	---	nC

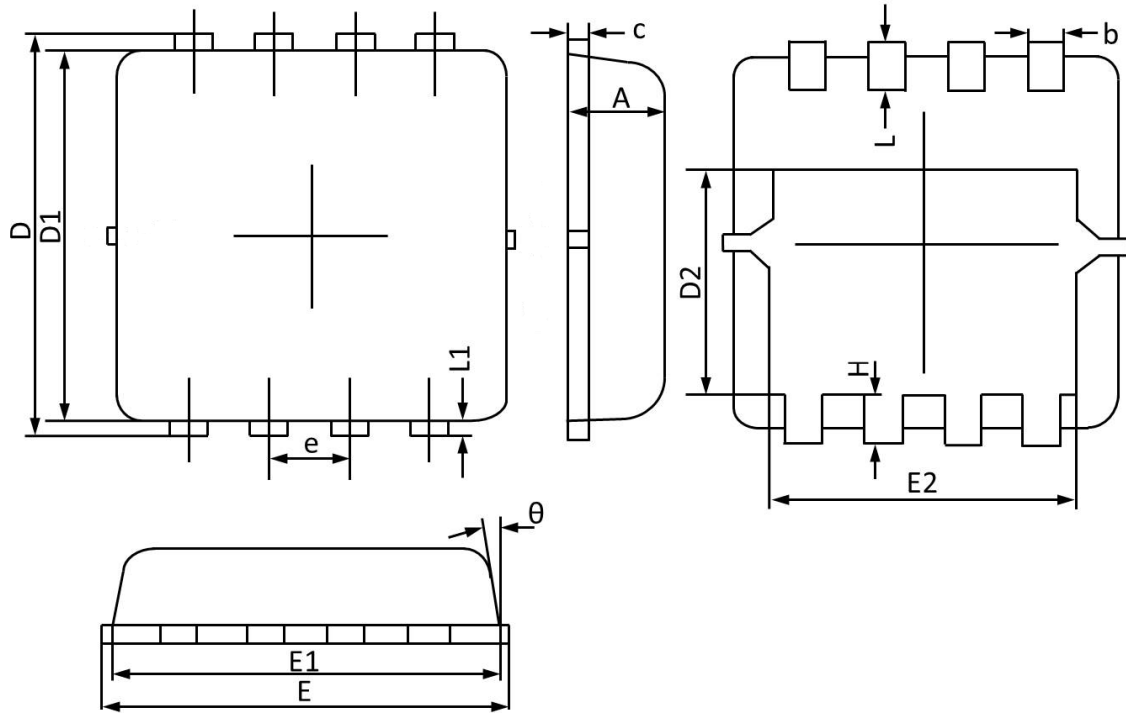
**Note:**

1. The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2OZ 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  $V_{DD}=-20V, V_{GS}=-10V, L=0.5\text{mH}$
4. The power dissipation is limited by 150°C junction temperature

**Typical Characteristics**



**DFN3X3-8L Package Outline Dimensions**



Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
<b>A</b>	0.70	0.75	0.85	<b>E1</b>	2.90	3.10	3.25
<b>b</b>	0.24	0.30	0.35	<b>E2</b>	2.35	2.50	2.60
<b>c</b>	0.10	0.17	0.25	<b>e</b>	0.65 BSC		
<b>D</b>	3.10	3.30	3.45	<b>H</b>	0.30	0.40	0.50
<b>D1</b>	2.90	3.05	3.20	<b>L</b>	0.30	0.40	0.50
<b>D2</b>	1.45	1.70	1.95	<b>L1</b>	--	0.13	--
<b>E</b>	3.05	3.25	3.40	<b>theta</b>	0°		14°