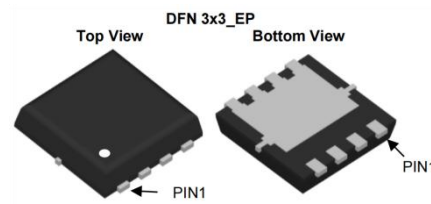




Product Summary

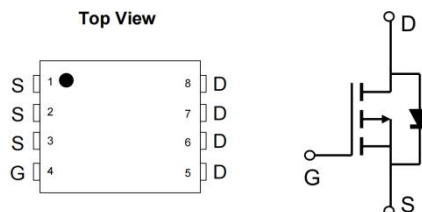
$V_{(BR)DSS}$	$R_{DS(ON)} \max$	$I_D \max$
-40V	$<36m\Omega @V_{GS}=-10V$	-25A
	$<55m\Omega @V_{GS}=-4.5V$	

Package & Internal Circuit



Description and Applications

- Trench Power MOSFET technology
- Low Gate Charge
- High Current Capability
- RoHS 2.0 and Halogen-Free Compliant
- Load Switch
- Battery Protection



Ordering Information

Part Number	Package Type	Package Qty
CFN35P40	DFN 3*3	5,000/Tape&Reel

Marking Information



Green product

35P40--Part Number
F-Fab location
A-Assembly location
Y--Year
W--Week
LT--Lot sequence

Absolute Maximum Rating ($T_{amb}=25^{\circ}C$ unless otherwise noted)

Parameter		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	40	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current - Continuous	$T_C = 25^{\circ}C$	I_D	-25	A
	$T_C = 70^{\circ}C$		-15	A
Pulsed Drain Current		$I_{D,pulse}$	-40	A
Single Pulse Avalanche Energy $L=0.1mH$		E_{AS}	51.2	mJ
Power Dissipation	$T_C = 25^{\circ}C$	P_D	35	W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to 150	$^{\circ}C$

Thermal Characteristics

Parameter		Symbol	Typ	Max	Units
Maximum Junction-to-Ambient	Steady-State	$R_{\theta JA}$	47	60	°C/W
Maximum Junction-to-Case	Steady-State	$R_{\theta JC}$	3.5	4.5	°C/W

Electrical Characteristics (Ta=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	I _D = -250μA, V _{GS} =0V	-40			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-40V, V _{GS} =0V			-1	μA
		T _J =150°C			-5	μA
I _{GSS}	Gate-Body leakage current	V _{DS} =0V, V _{GS} = ±20V			±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} I _D = -250μA	-1.5	-2	-2.5	V
R _{DS(ON)}	Drain-Source on-Resistance	V _{GS} = -10V, I _D = -12A		30	36	mΩ
		V _{GS} = -4.5V, I _D = -8A		46	55	mΩ
R _g	Gate resistance	f=1MHz		10		Ω
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{GS} =0V V _{DS} = -20V f=1MHz		961		pF
C _{oss}	Output Capacitance			159		pF
C _{rss}	Reverse Transfer Capacitance			84		pF
Q _g	Total Gate Charge	V _{GS} = -10V V _{DS} = -20V I _D = -2A		15.8		nC
Q _{gs}	Gate Source Charge			2		nC
Q _{gd}	Gate Drain Charge			3		nC
t _{D(on)}	Turn-On DelayTime	V _{DS} = -10V V _{GS} = -10V R _L = 1Ω R _G = 3Ω		3.2		ns
t _r	Turn-On Rise Time			32		ns
t _{D(off)}	Turn-Off DelayTime			21.6		ns
t _f	Turn-Off Fall Time			16.8		ns
Drain-Source Body Diode Characteristics						
V _{SD}	Body Diode Forward Voltage	I _S = -1A V _{GS} = 0V	-1.2	-1.87	-2.1	V
t _{rr}	Body Diode Reverse Recovery Time	I _F = -6A di/dt =100 A/μs		21.2		ns
Q _{rr}	Body Diode Reverse Recovery Charge			10.9		nC

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

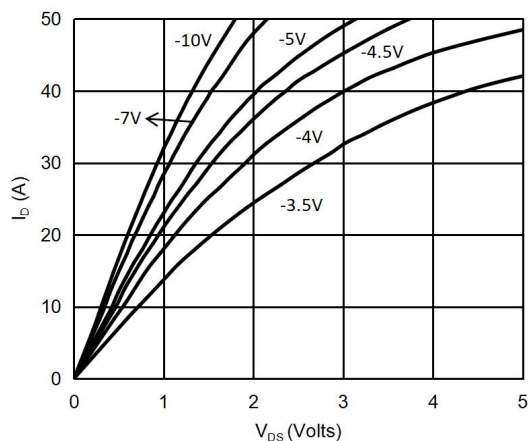


Figure 1: On-Region Characteristics

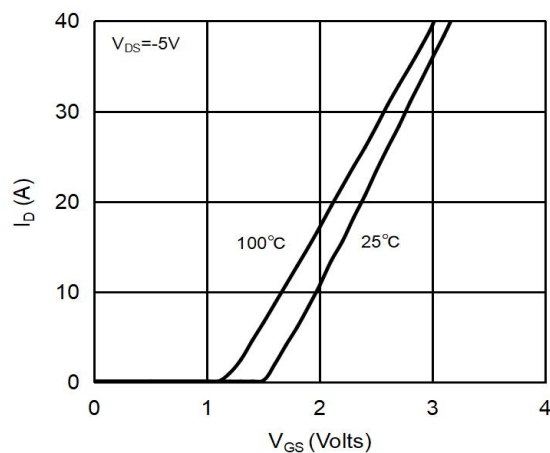


Figure 2: Transfer Characteristics

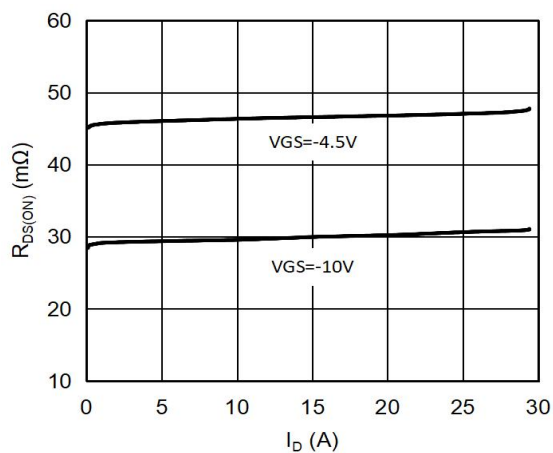


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

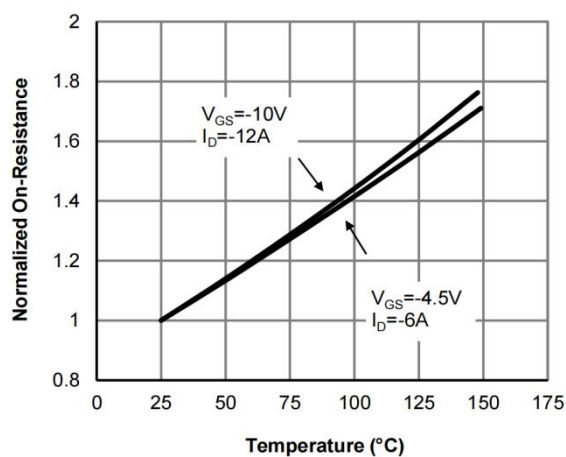


Figure 4: On-Resistance vs. Junction Temperature

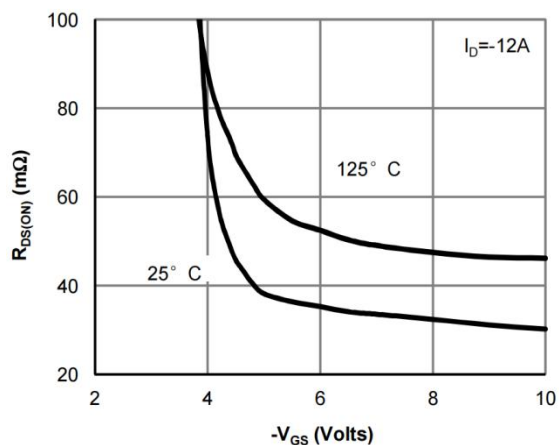


Figure 5: On-Resistance vs. Gate-Source Voltage

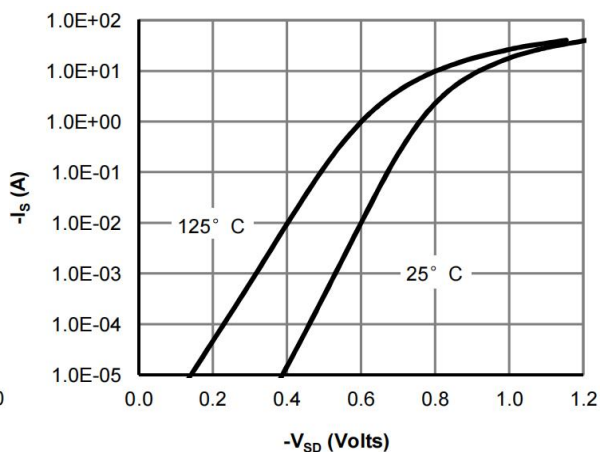


Figure 6: Body-Diode Characteristics

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

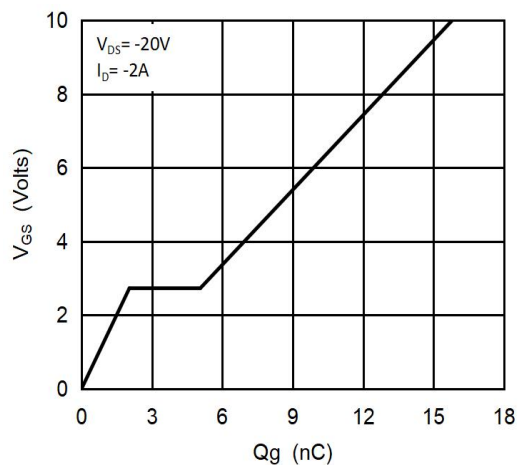


Figure 7: Gate-Charge Characteristics

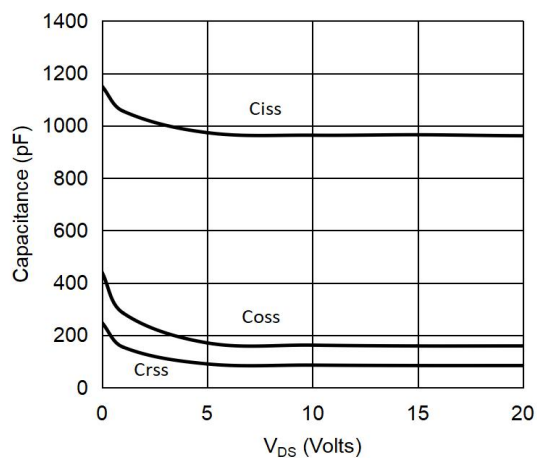


Figure 8: Capacitance Characteristics

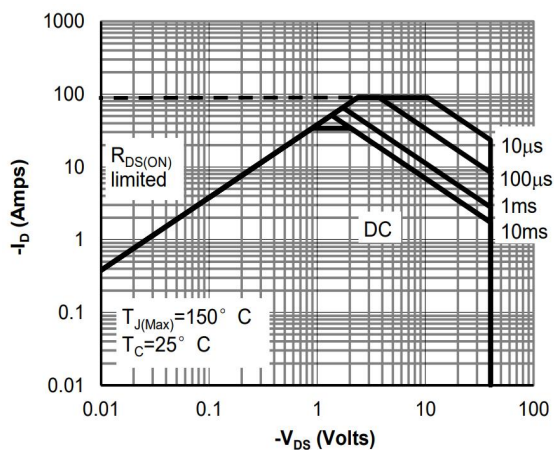


Figure 9: Maximum Forward Biased Safe Operating Area

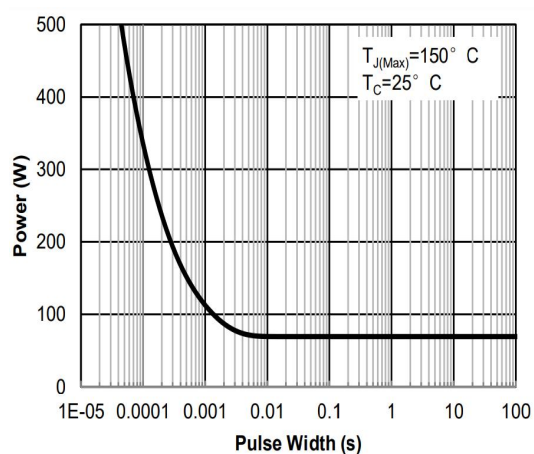


Figure 10: Single Pulse Power Rating Junction-to-Case

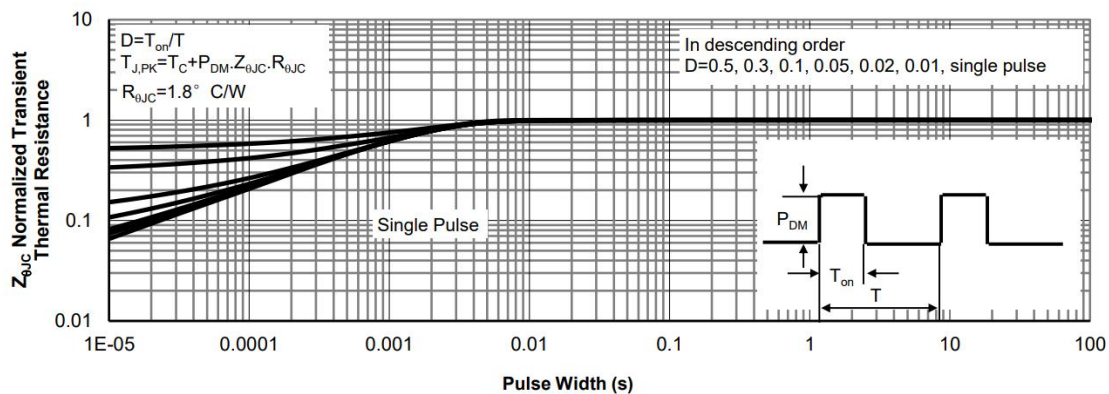
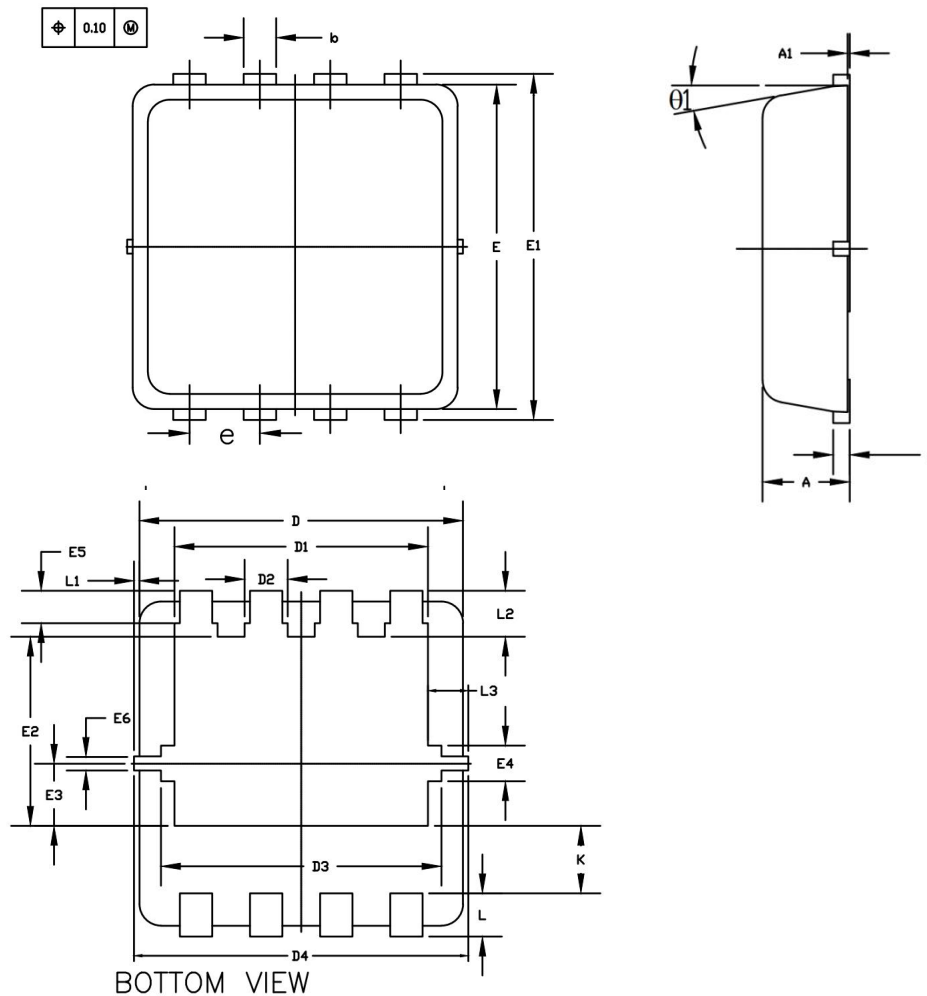


Figure 11: Normalized Maximum Transient Thermal Impedance

DFN 3x3 Package



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.70	0.80	0.90	0.028	0.031	0.035
A1	0.00	0.025	0.05	0.000	0.001	0.002
b	0.24	0.30	0.35	0.009	0.012	0.014
c	0.10	0.15	0.25	0.004	0.006	0.010
D	2.90	3.00	3.10	0.114	0.118	0.122
D1	2.25	2.35	2.45	0.089	0.093	0.097
D2	0.30	0.40	0.50	0.012	0.016	0.020
D3	2.50	2.60	2.70	0.098	0.102	0.106
D4	3.00	3.10	3.20	0.118	0.122	0.126
E	2.90	3.00	3.10	0.114	0.118	0.122
E1	3.10	3.20	3.30	0.122	0.126	0.130
E2	1.65	1.75	1.85	0.065	0.069	0.073
E3	0.48	0.58	0.68	0.019	0.023	0.027
E4	0.23	0.33	0.43	0.009	0.013	0.017
E5	0.20	0.30	0.40	0.008	0.012	0.016
E6	0.075	0.125	0.175	0.003	0.005	0.007
e	0.60	0.65	0.70	0.024	0.026	0.028
K	0.52	0.62	0.72	0.020	0.024	0.028
L	0.30	0.40	0.50	0.012	0.016	0.020
L1	0	0.05	0.10	0	0.002	0.004
L2	0.33	0.43	0.53	0.013	0.017	0.021
L3	0.275	0.375	0.475	0.011	0.015	0.019
$\theta 1$	0°	10°	12°	0°	10°	12°

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