

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-40V	28mΩ@-10V	-33A
	42mΩ@-4.5V	

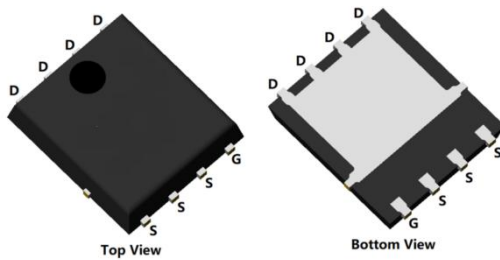
Feature

- High density cell design for ultra low $R_{DS(on)}$
- Low gate charge

Application

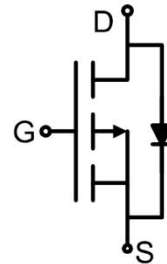
- Power management
- Load Switch

Package

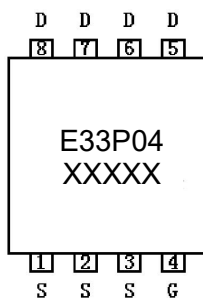


PDFN5*6-8L

Circuit diagram



Marking



Absolute maximum ratings (T_C=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-40	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	-33	A
Pulsed Drain Current	I _{DM}	-132	A
Power Dissipation	P _D	50	W
Thermal Resistance, Junction-to-Case	R _{θJC}	2.5	°C/W
Single pulse avalanche energy ¹⁾	E _{AS}	20	mJ
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

Electrical characteristics (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-40			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -40V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1.0		-2.5	V
Drain-source on-resistance ²⁾	R _{DS(on)}	V _{GS} = -10V, I _D = -5A			28	mΩ
		V _{GS} = -4.5V, I _D = -5A			42	mΩ
Dynamic characteristics ³⁾						
Input Capacitance	C _{iss}	V _{DS} = -20V, V _{GS} = 0V, f = 1MHz		1750		pF
Output Capacitance	C _{oss}			215		
Reverse Transfer Capacitance	C _{rss}			180		
Total Gate Charge	Q _g	V _{DD} = -20V, V _{GS} = -10V, I _D = -5A		24		nC
Gate-Source Charge	Q _{gs}			3.5		
Gate-Drain Charge	Q _{gd}			6		
Turn-on delay time	t _{d(on)}	V _{DD} = -20V, V _{GS} = -10V, R _G = 3Ω, R _L = 2Ω		9		nS
Turn-on rise time	t _r			8		
Turn-off delay time	t _{d(off)}			28		
Turn-off fall time	t _f			10		
Source-Drain Diode characteristics						
Diode Forward voltage ²⁾	V _{SD}	V _{GS} = 0V, I _{SD} = -5A			-1.2	V
Reverse Recovery Time	t _{rr}	I _S = -5A , V _{GS} = 0V ,		29		nS
Reverse Recovery Charge	Q _{rr}	di/dt = 100A/μs		20		nC

Notes:

1) The EAS data shows Max. rating. The test condition is V_{DD} = -20V, V_{GS} = -10V, L = 0.5mH.

2) The data tested by pulsed, pulse width ≤ 300μs, duty cycle ≤ 2%

3) Guaranteed by design, not subject to production testing.

Typical Characteristics

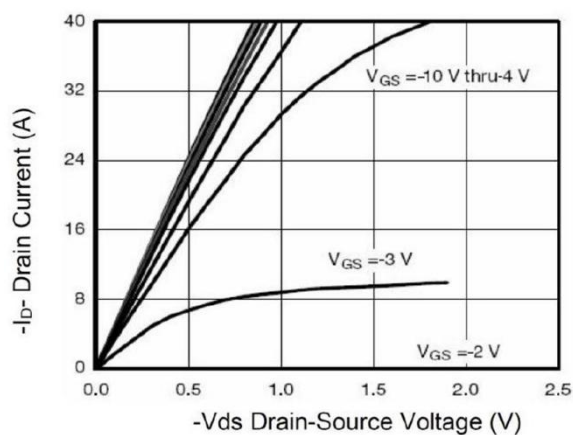


Fig 1 Typical Output Characteristics

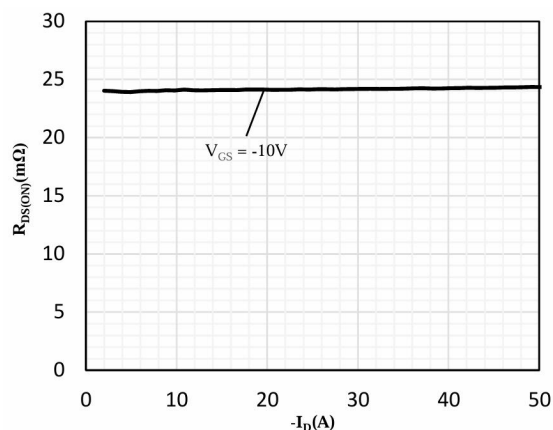


Fig 2 On-Resistance vs. Drain Current and Gate Voltage

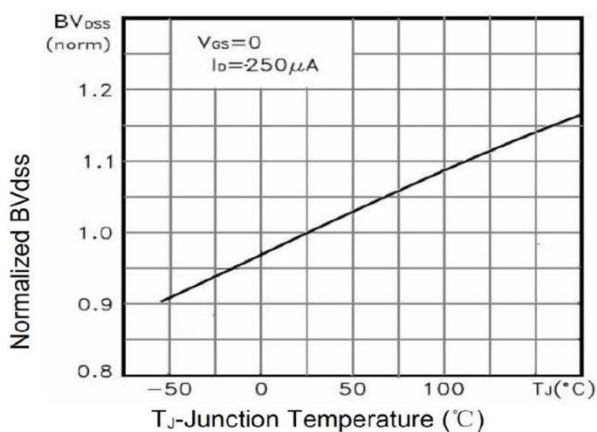


Fig 3 Normalized Breakdown Voltage vs. Junction Temperature

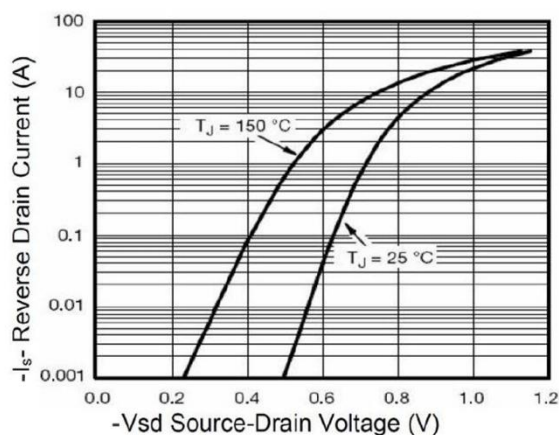


Fig 4 Body-Diode Characteristics

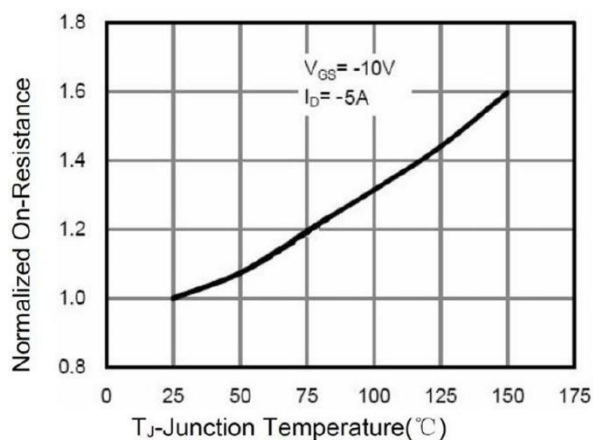


Fig 5 Normalized On-Resistance vs. Junction Temperature

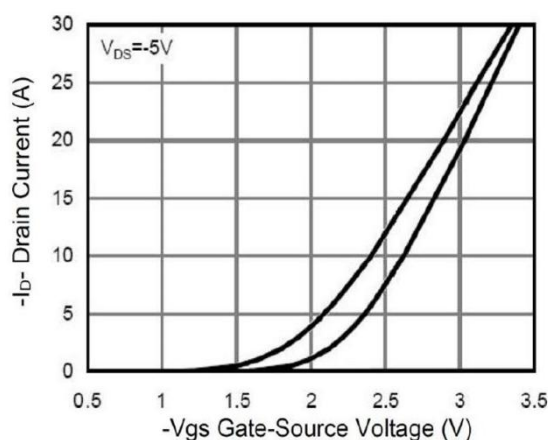


Fig 6 Transfer Characteristics

Typical Characteristics

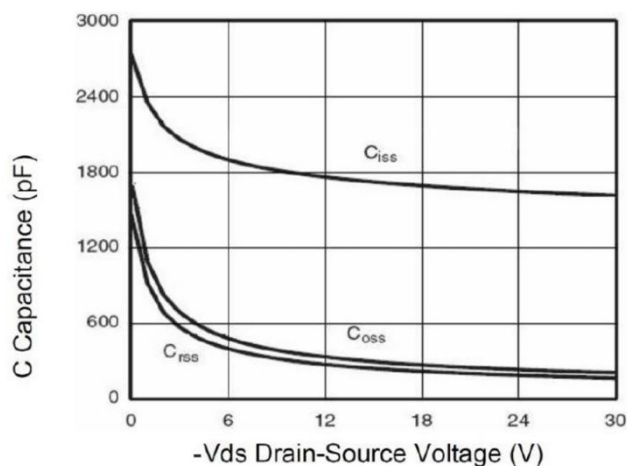


Fig 7 Capacitance Characteristics

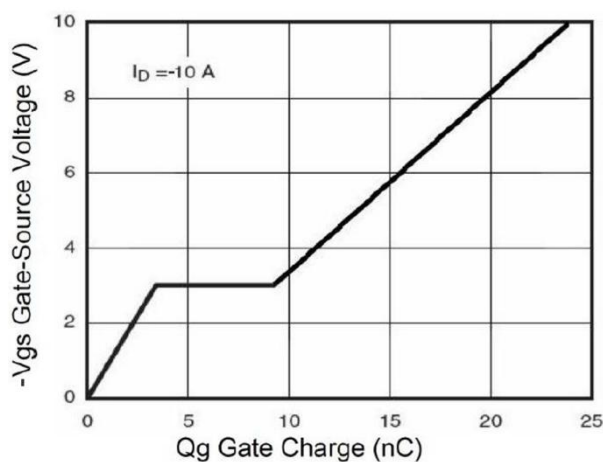


Fig 8 Gate-Charge Characteristics

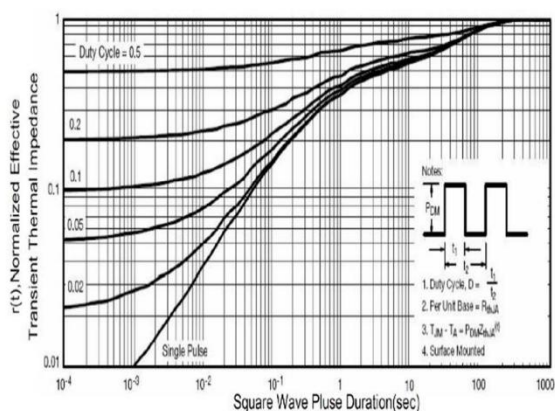


Fig 9 Normalized Thermal Transient Impedance, Junction-to-Ambient

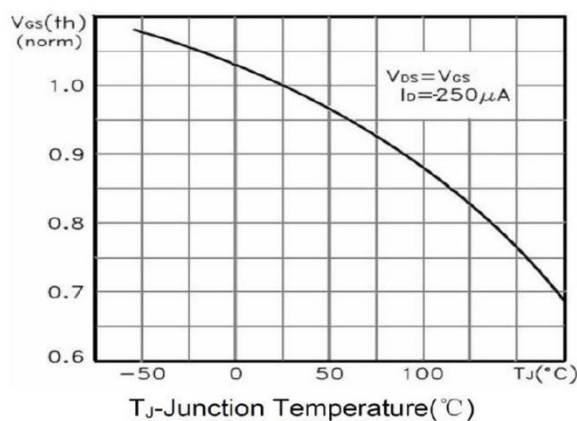
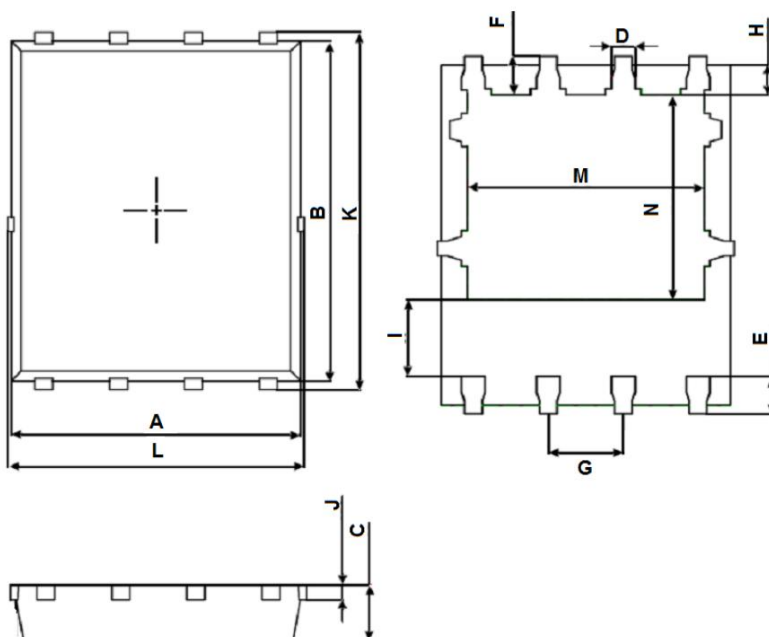


Fig 10 $V_{GS(th)}$ vs. Junction Temperature

PDFN5*6-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.824	4.976	0.190	0.196
B	5.674	5.826	0.223	0.229
C	0.900	1.000	0.035	0.039
D	0.350	0.450	0.014	0.018
E	0.559	0.711	0.022	0.028
F	0.574	0.726	0.023	0.029
G	1.250	1.290	0.049	0.051
H	0.424	0.576	0.017	0.023
I	1.190	1.390	0.047	0.055
J	0.154	0.354	0.006	0.014
K	5.974	6.126	0.235	0.241
L	4.944	5.096	0.195	0.201
M	3.910	4.110	0.154	0.162
N	3.375	3.575	0.133	0.141