

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
40V	17mΩ@10V	25A
	25mΩ@4.5V	

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-40V	45mΩ@-10V	-18A
	60mΩ@-4.5V	

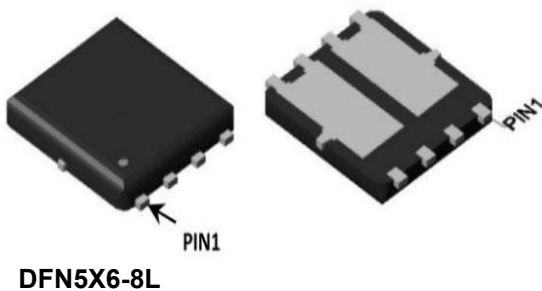
Feature

- High density cell design for ultra low Rdson
- Fully characterized avalanche voltage and current
- Fast Switching Speed

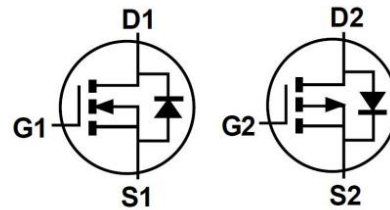
Application

- Load switching
- Inverters
- Power Management

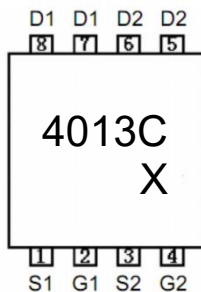
Package



Circuit diagram



Marking



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

Parameter	Symbol	N-Channel	p-Channel	Unit
Drain-Source Voltage	V_{DS}	40	-40	V
Gate-Source Voltage	V_{GS}	± 20	± 20	V
Continuous Drain Current(Tc=25°C)	I_D	25	-18	A
Pulsed Drain Current	I_{DM}	100	-72	A
Power Dissipation(Tc=25°C)	P_D	30	30	W
Junction Temperature	T_J	150	150	°C
Storage Temperature	T_{STG}	-55 ~ +150	-55 ~ +150	°C

N-CH Electrical characteristics (TA=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	40			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 32V, V_{GS} = 0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0		2.5	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 10A$			17	m Ω
		$V_{GS} = 4.5V, I_D = 8A$			25	
Dynamic characteristics¹⁾						
Input Capacitance	C_{iss}	$V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$		1061		pF
Output Capacitance	C_{oss}			110		
Reverse Transfer Capacitance	C_{rss}			95		
Total Gate Charge	Q_g	$V_{DS} = 15V, V_{GS} = 10V, I_D = 10A$		23		nC
Gate-Source Charge	Q_{gs}			3.3		
Gate-Drain Charge	Q_{gd}			5.3		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 15V, V_{GS} = 10V$ $R_G = 3.3\Omega, I_D = 6A$		5.5		nS
Turn-on rise time	t_r			14		
Turn-off delay time	$t_{d(off)}$			25		
Turn-off fall time	t_f			12		
Source-Drain Diode characteristics						
Diode Forward voltage	V_{DS}	$V_{GS} = 0V, I_S = 1A$			1.2	V

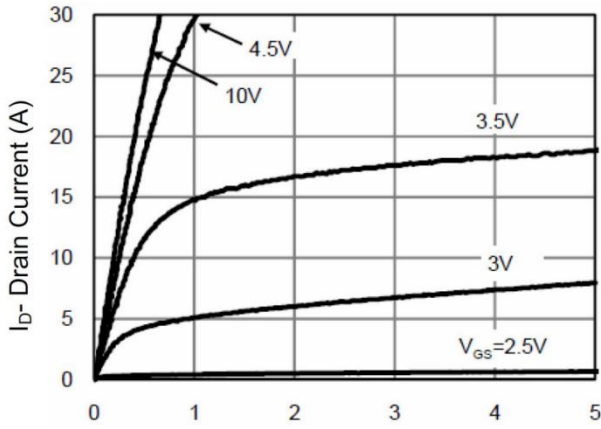
P-CH Electrical characteristics (T_A=25 °C, unless otherwise noted)

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} = -32V, 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	R _{DS(on)}	V _{GS} = -10V, I _D = -5A			45	mΩ
		V _{GS} = -4.5V, I _D = -3A			60	
Dynamic characteristics¹⁾						
Input Capacitance	C _{iss}	V _{DS} = -15V, V _{GS} = 0V, f = 1MHz		964		pF
Output Capacitance	C _{oss}			110		
Reverse Transfer Capacitance	C _{rss}			80		
Total Gate Charge	Q _g	V _{DS} = -15V, V _{GS} = -10V, I _D = -10A		21		nC
Gate-Source Charge	Q _{gs}			3.5		
Gate-Drain Charge	Q _{gd}			5.2		
Turn-on delay time	t _{d(on)}	V _{DD} = -15V, V _{GS} = -10V, R _G = 3.3Ω, I _D = -6Ω		5.1		nS
Turn-on rise time	t _r			15		
Turn-off delay time	t _{d(off)}			23		
Turn-off fall time	t _f			11		
Source-Drain Diode characteristics						
Diode Forward voltage	V _{DS}	V _{GS} = 0V, I _S = -1A			-1.2	V

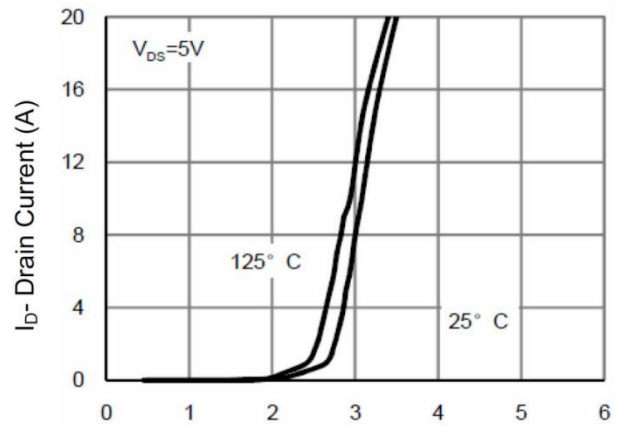
Notes:

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

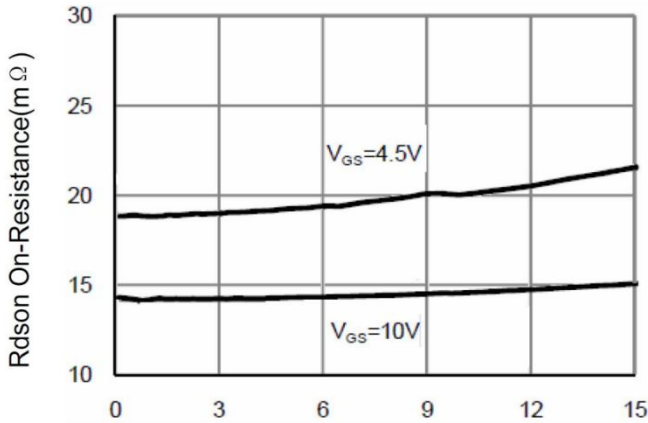
N- Channel Typical Characteristics



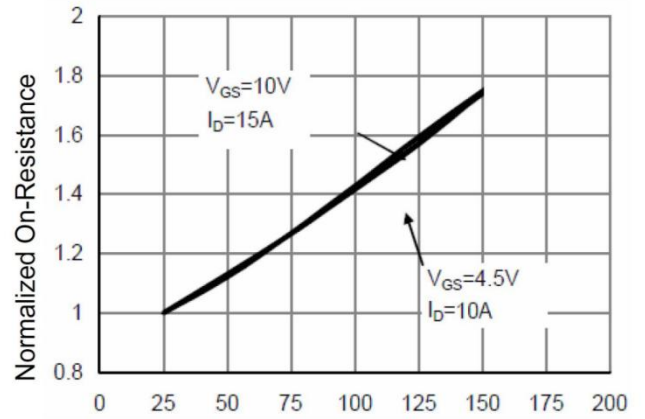
Vds Drain-Source Voltage (V)
Output Characteristics



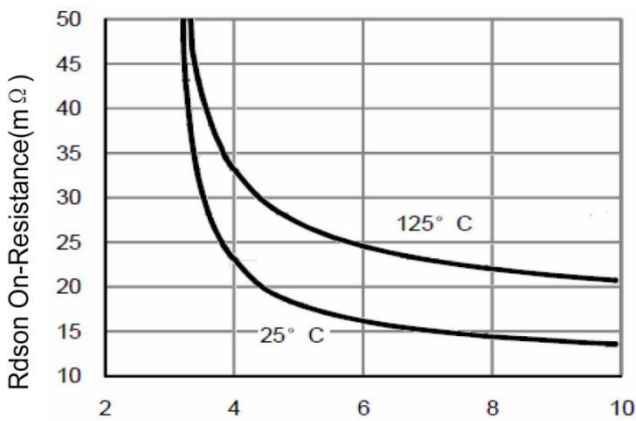
Vgs Gate-Source Voltage (V)
Transfer Characteristics



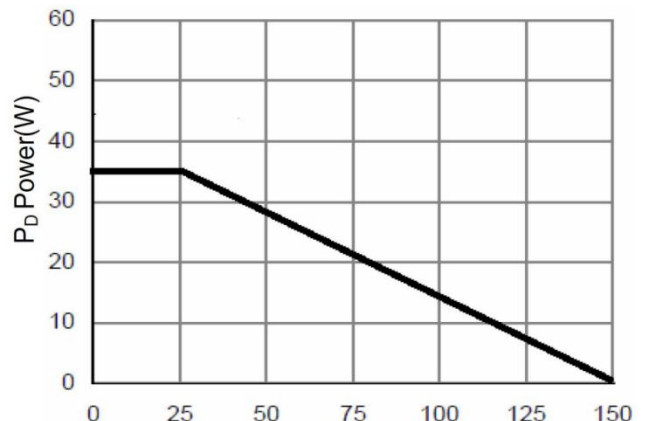
I_D - Drain Current (A)
Drain-Source On-Resistance



T_J -Junction Temperature(°C)
Drain-Source On-Resistance

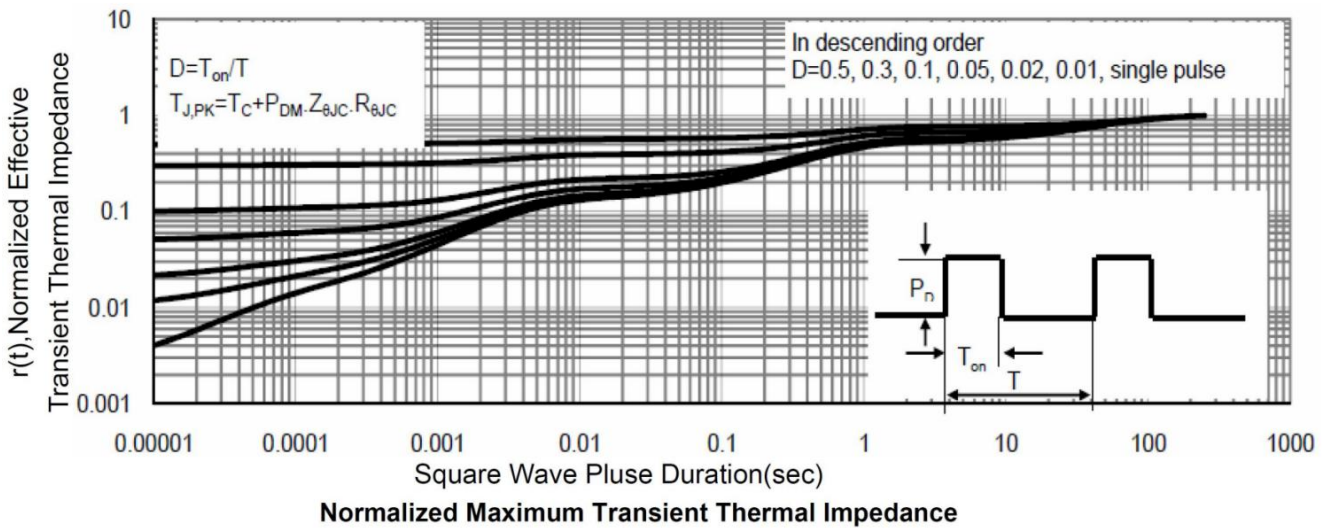
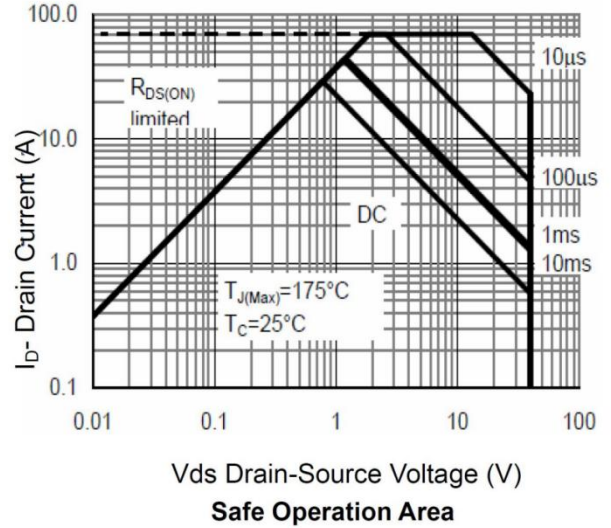
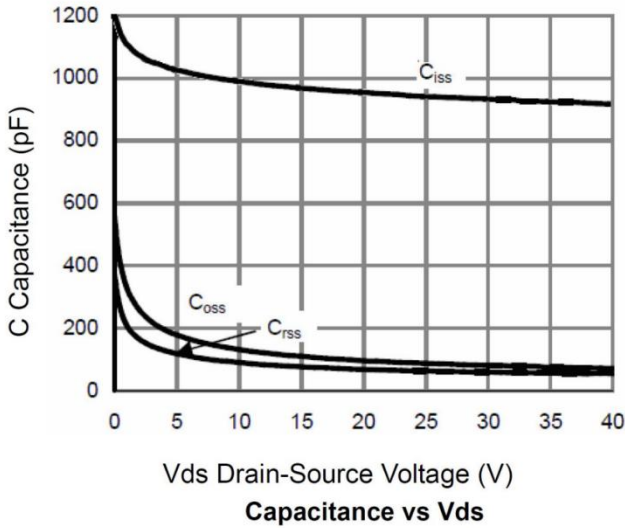
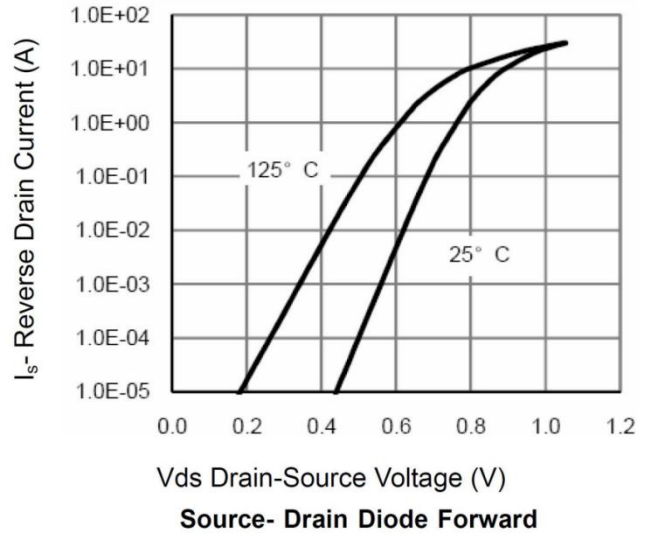
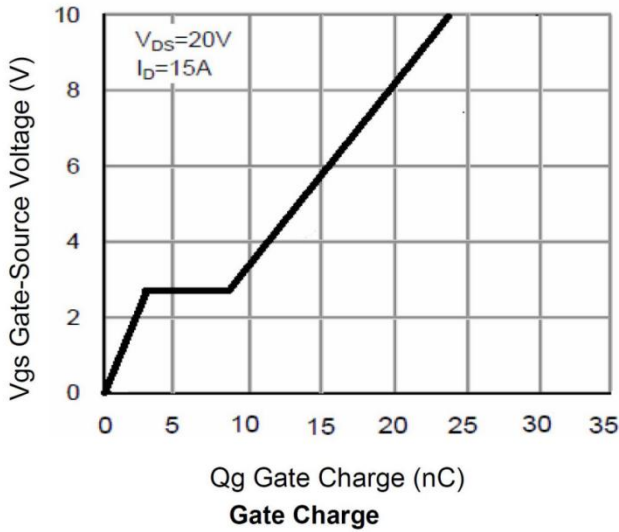


Vgs Gate-Source Voltage (V)
Rdson vs Vgs

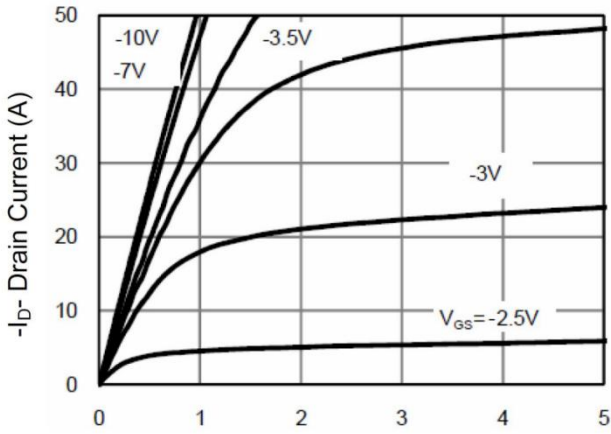


T_J -Junction Temperature(°C)
Power Dissipation

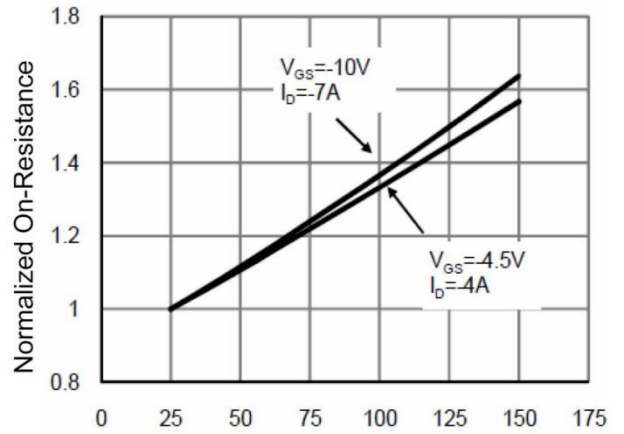
N- Channel Typical Characteristics



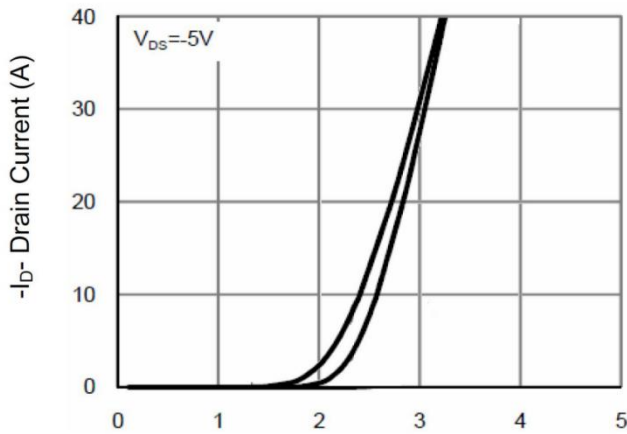
P-Channel Typical Characteristics



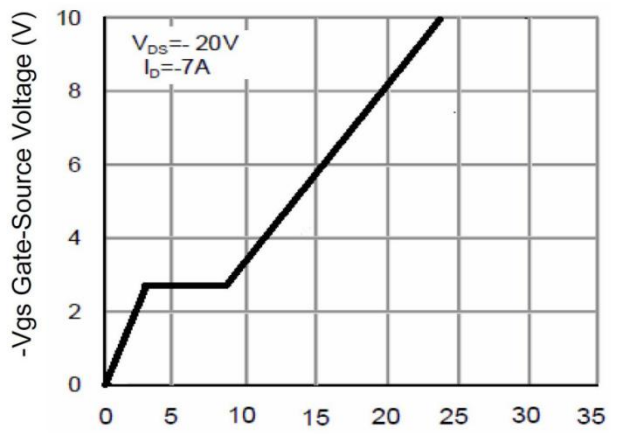
Output Characteristics



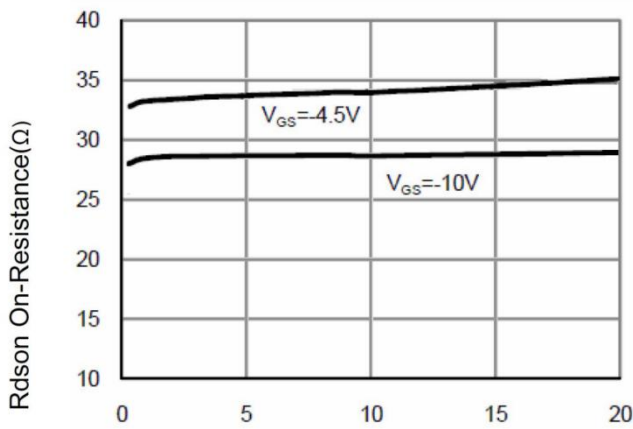
Rdson-Junction Temperature



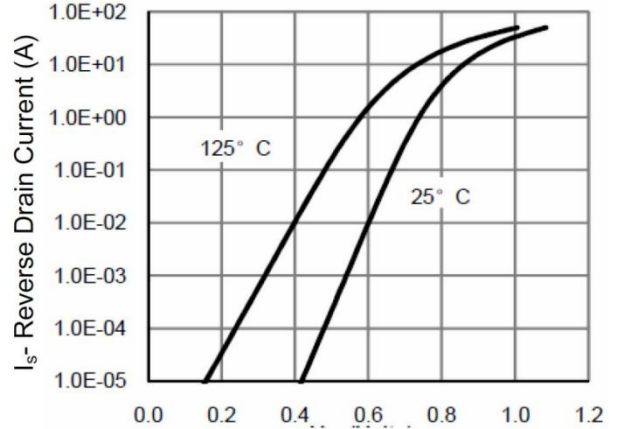
Transfer Characteristics



Gate Charge

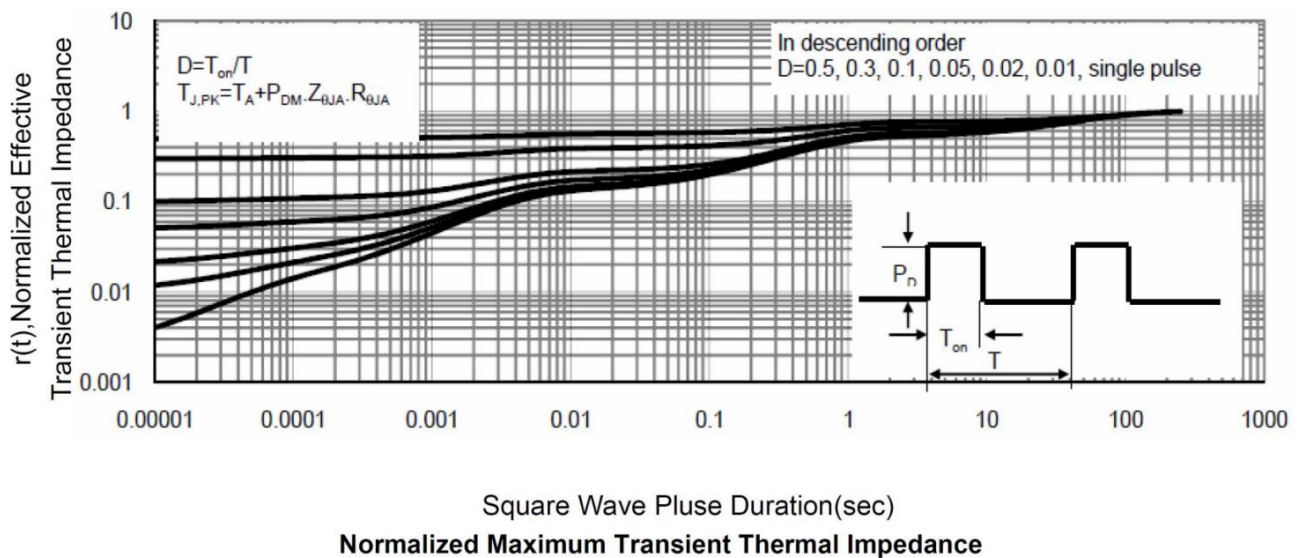
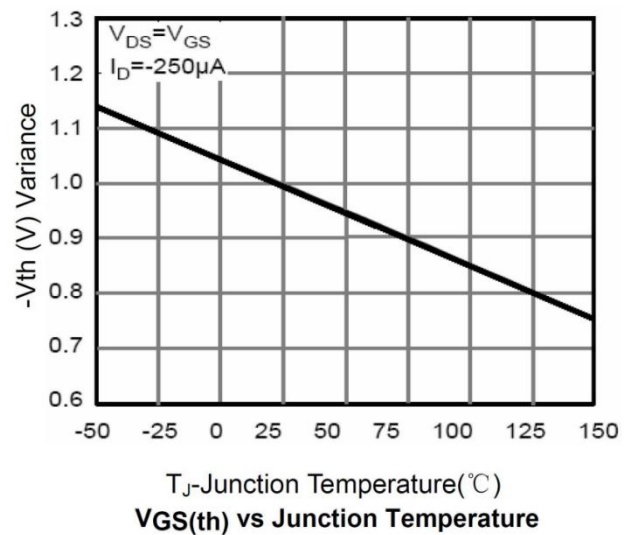
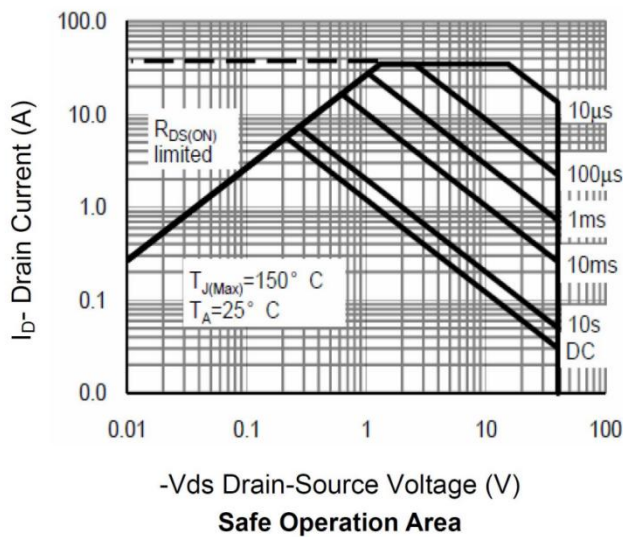
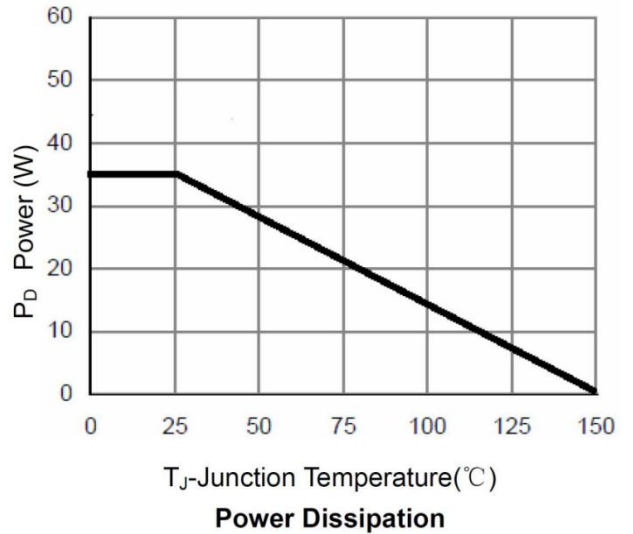
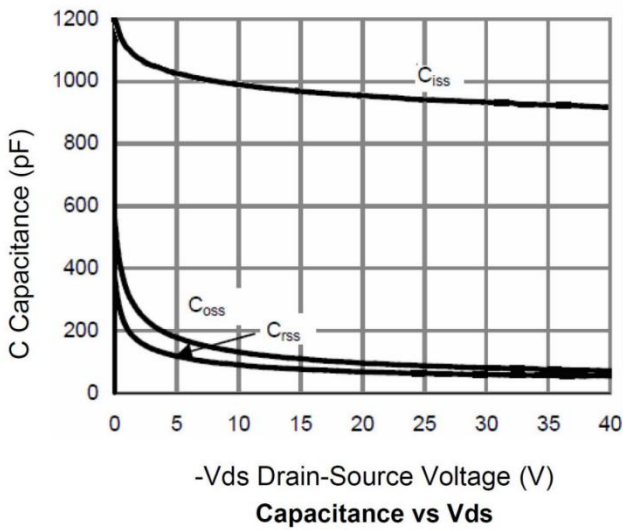


Rdson- Drain Current

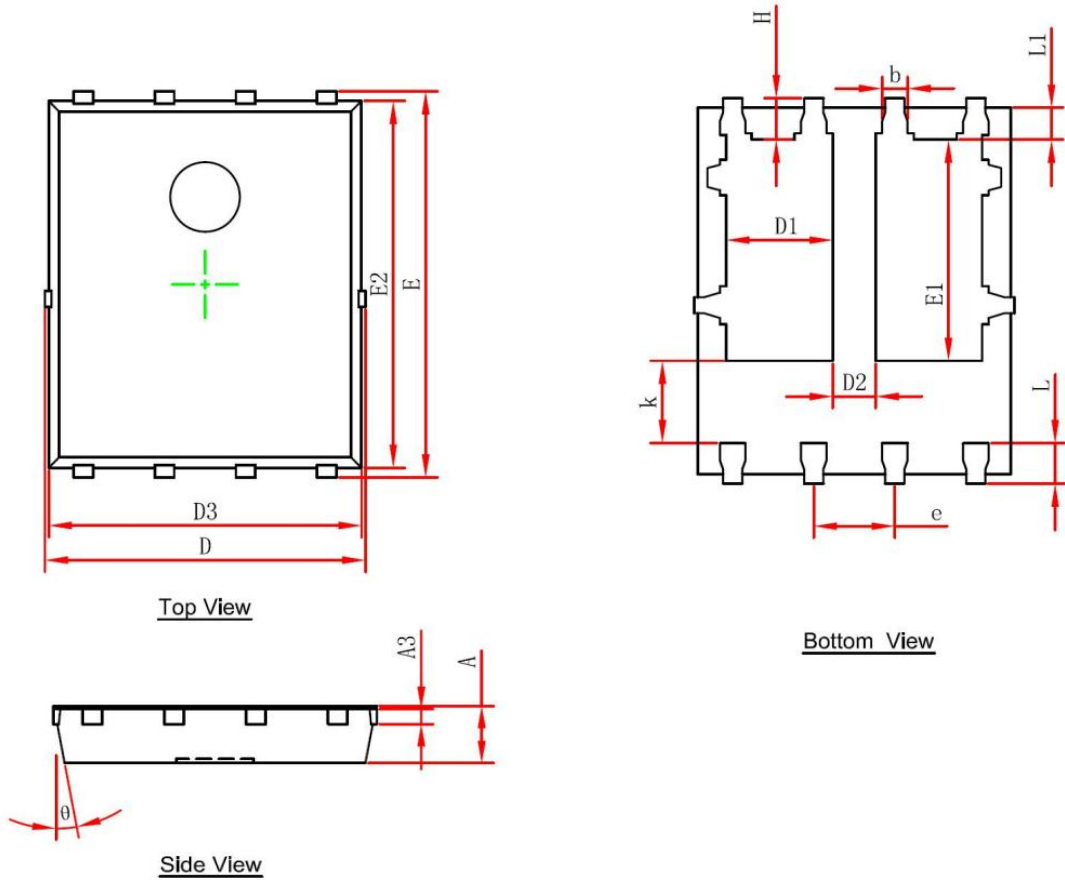


Source- Drain Diode Forward

P- Channel Typical Characteristics



DFN5X6-8L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039
A3	0.254 REF.		0.010 REF.	
D	4.944	5.096	0.195	0.201
E	5.974	6.126	0.235	0.241
D1	1.470	1.870	0.058	0.074
D2	0.470	0.870	0.019	0.034
E1	3.375	3.575	0.133	0.141
D3	4.824	4.976	0.190	0.196
E2	5.674	5.826	0.223	0.229
k	1.190	1.390	0.047	0.055
b	0.350	0.450	0.014	0.018
e	1.270 TYP.		0.050 TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°