

P-Channel Enhancement Mode MOSFET

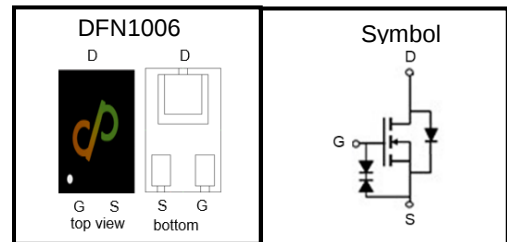
Feature

- Surface mount package
- Reliable and Rugged
- ROHS Compliant & Halogen-Free
- ESD Protection

Applications

- Small Signal Switch
- Load Switch

Pin Description



V_{DSS}	-20	V
$R_{DS(ON)-Max}$	640	mΩ
I_D	-0.85	A

Absolute Maximum Ratings (T_J=25°C Unless Otherwise Noted)

Symbol	Parameter		Rating	Unit
V_{DSS}	Drain-Source Voltage		-20	V
V_{GSS}	Gate-Source Voltage		±12	
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 150	°C
I_S	Diode Continuous Forward Current		-0.5	A
$I_{DM}^{①}$	Pulse Drain Current Tested	$T_A=25^{\circ}C$	-2.1	A
I_D	Continuous Drain Current	$T_A=25^{\circ}C$	-0.85	A
		$T_A=70^{\circ}C$	-0.68	
P_D	Maximum Power Dissipation	$T_A=25^{\circ}C$	0.69	W
		$T_A=70^{\circ}C$	0.44	

Thermal Characteristics

Symbol	Parameter		Rating	Unit
$R_{\theta JA}^{②}$	Thermal Resistance-Junction to Ambient	Steady State	180	°C/W

Note ① : Max. current is limited by junction temperature.

Note ② : Surface Mounted on 1in² FR-4 board with 1oz.

Electrical Characteristics (T_J=25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Electrical Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-20	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-16V, V _{GS} =0V	-	-	-1	uA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250uA	-0.5	-0.75	-1	V
I _{GSS}	Gate Leakage Current	V _{GS} =±12V, V _{DS} =0V	-	-	±10	uA
R _{DS(ON)} ③	Drain-Source On-state Resistance	V _{GS} =-4.5V, I _D =550mA	-	530	640	mΩ
		V _{GS} =-2.5V, I _D =450mA	-	730	950	
		V _{GS} =-1.8V, I _D =350mA	-	1300	1950	
gfs	Forward Transconductance	V _{DS} =-5V, I _D =-550mA	-	1	-	S
Dynamic Characteristics ④						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =-10V, Freq.=1MHz	-	58	-	pF
C _{oss}	Output Capacitance		-	5.7	-	
C _{rss}	Reverse Transfer Capacitance		-	4.4	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =-10V, I _D =-1.33A, V _{GS} =-4.5V, R _{GEN} =3Ω	-	0.4	-	uS
t _r	Turn-on Rise Time		-	0.06	-	
t _{d(OFF)}	Turn-off Delay Time		-	0.02	-	
t _f	Turn-off Fall Time		-	0.8	-	
Q _g	Total Gate Charge	V _{DS} =-10V, V _{GS} =-2.5V, I _D =-1A	-	0.53	-	nC
Q _g	Total Gate Charge	V _{DS} =-10V, V _{GS} =-4.5V, I _D =-1A	-	0.8	-	
Q _{gs}	Gate-Source Charge		-	0.2	-	
Q _{gd}	Gate-Drain Charge		-	0.2	-	
Source-Drain Characteristics						
V _{SD} ③	Diode Forward Voltage	I _S =-1A, V _{GS} =0V	-	-0.75	-1.1	V
t _{rr}	Reverse Recovery Time	I _F =-1A, V _{GS} =0, dI _F /dt=100A/us	-	9.2	-	nS
Q _{rr}	Reverse Recovery Charge		-	0.8	-	nC

Note ③ : Pulse test (pulse width≤300us, duty cycle≤2%).

Note ④ : Guaranteed by design, not subject to production testing.

Typical Characteristics

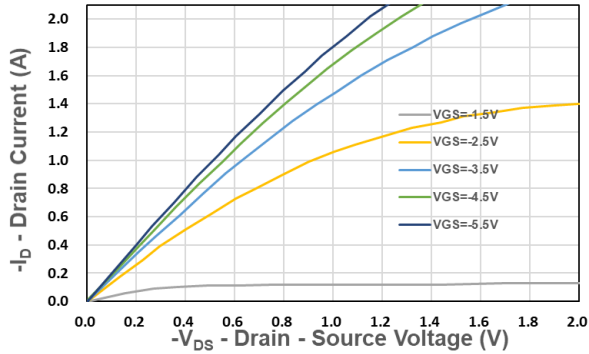


Figure 1. Output Characteristics

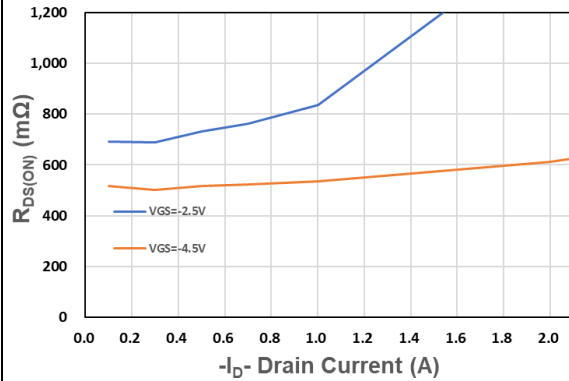


Figure 2. On-Resistance vs. I_D

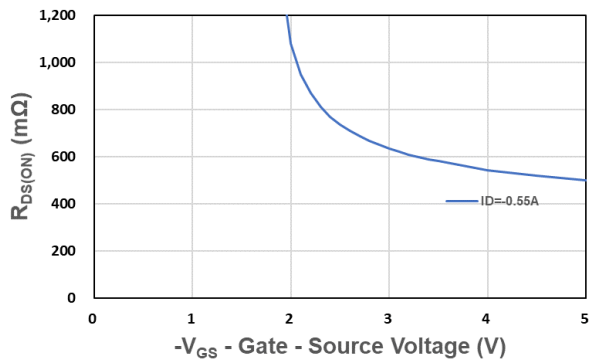


Figure 3. On-Resistance vs. V_{GS}

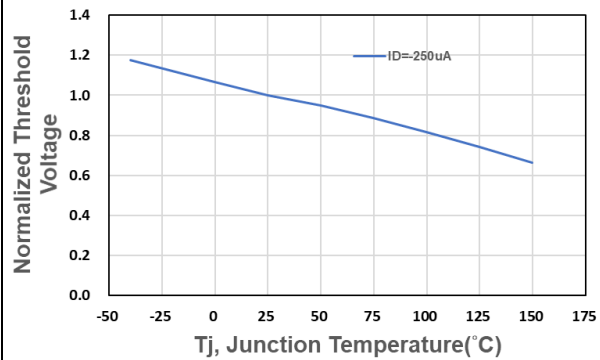


Figure 4. Gate Threshold Voltage

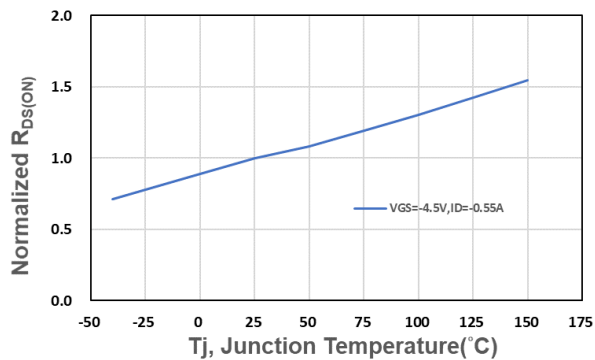


Figure 5. Drain-Source On Resistance

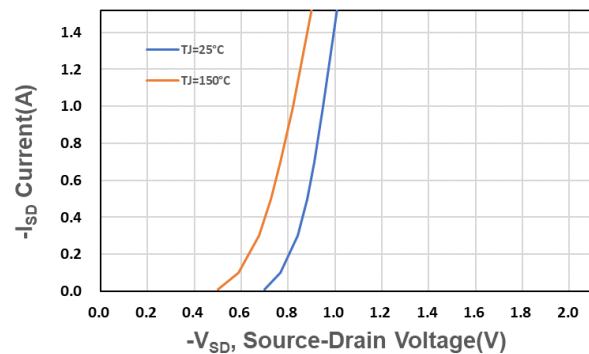


Figure 6. Source-Drain Diode Forward

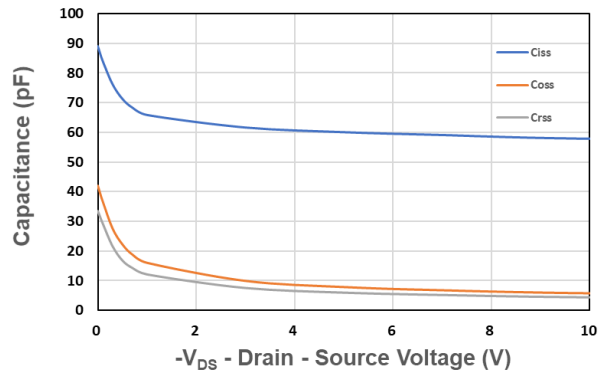


Figure 7. Capacitance

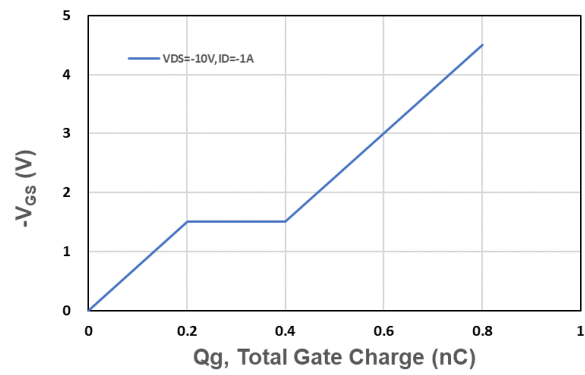


Figure 8. Gate Charge Characteristics

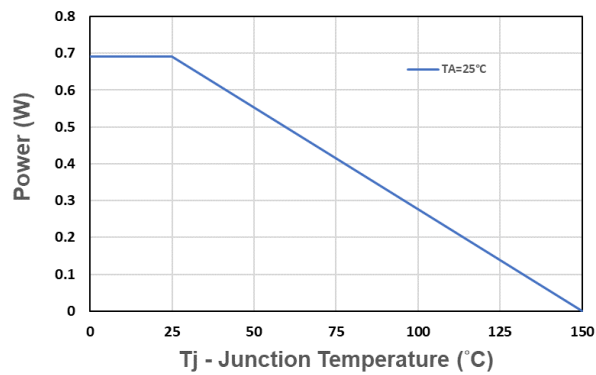


Figure 9. Power Dissipation

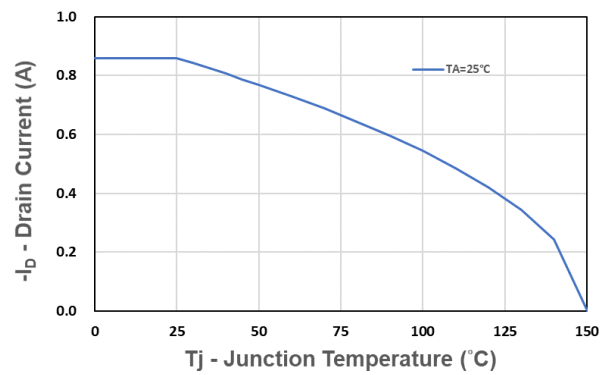


Figure 10. Drain Current

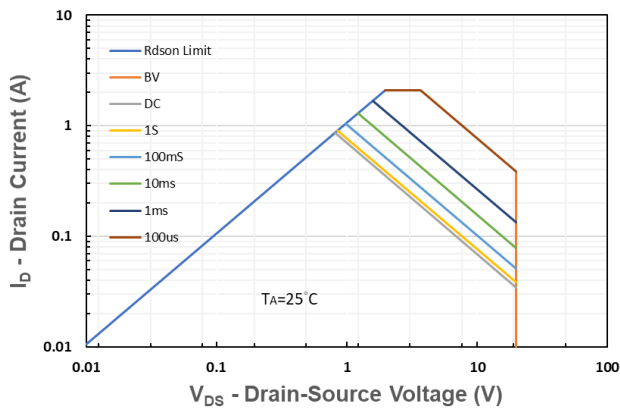


Figure 11. Safe Operating Area

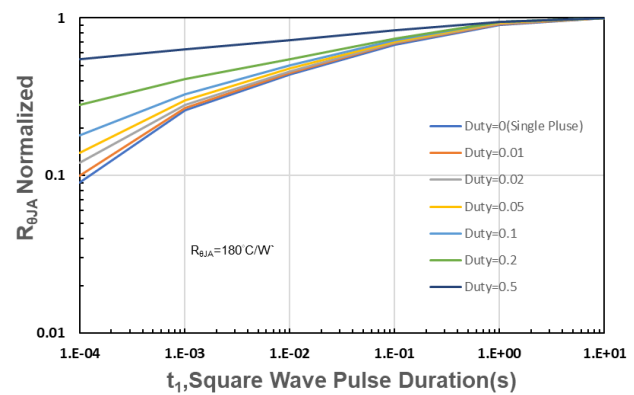


Figure 12. $R_{\theta JA}$ Transient Thermal Impedance

Package Information
