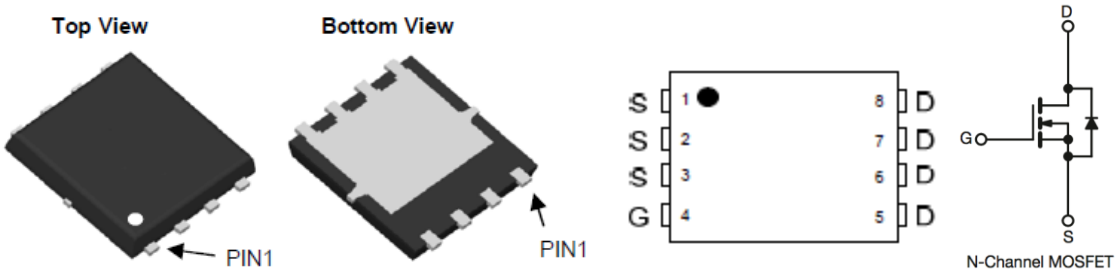
Features

- V_{DS} = 30 V,
- I_D = 80A
- $R_{DS(ON)}$ @V_{GS}= 10V, TYP 3.8mΩ
- $R_{DS(ON)}$ @V_{GS}= 5V, TYP 6.9mΩ

General Description

- DC/DC power supplies
- Industrial motor drives

Pin Configurations



DFN5*6-8L

Maximum Ratings(Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	VDS	30	V
Gate-Source Voltage	VGS	±20	
Continuous Drain Current, VGS @ 10V[1]	ID@TC =25℃	80	A
Continuous Drain Current, VGS @ 10V[1]	ID@TC=100℃	60	
Pulsed Drain Current ①	IDM	192	
Single Pulse Avalanche Energy3	EAS	306	mj
Avalanche Current	I_{AS}	53.8	A
Power Dissipation ②	PD@TC=25℃	82.5	W
Storage Temperature	TSTG	-55 to 175	℃
Operating Junction	TJ	-55 to 175	

Thermal Data

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction-Case	RθJC		2.4	℃/W

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Parameters ③						
Drain-Source Breakdown Voltage	BV_{DSS}	VGS = 0V, ID = 250μA	30			V
Zero Gate Voltage Drain Current	I_{DSS}	VDS = 30V, VGS =0V			1	μA
Gate-Body leakage Current	I_{GSS}	VDS =0V, VGS = ±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	VDS =VGS, ID = 250μA	1	1.5	3	V
Static Drain-Source On-Resistance	RDS(on)	VGS = 10V, ID = 30A		3.8	5.0	mΩ
		VGS = 5V, ID = 24A		6.9	11	mΩ
Dynamic Parameters ④						
Input Capacitance	Ciss	VDS=15V,VGS=0V, F=1.0MHz		2016		pF
Output Capacitance	Coss			251		pF
Reverse Transfer Capacitance	Crss			230		pF
Total Gate Charge	Qg	VDS=10V,ID=30A, VGS=10V		60.5		nC
Gate Source Charge	Qgs			8.1		nC
Gate Drain Charge	Qgd			7.8		nC
Switching Parameters ④						
Turn-On DelayTime	td(on)	VDD=10V,ID=30A VGS=10V,RGEN=2.7Ω		20		ns
Turn-On Rise Time	tr			15		ns
Turn-Off DelayTime	td(off)			60		ns
Turn-Off Fall Time	tf			10		ns
Drain-Source Diode Characteristics and Maximum Ratings						
Diode Forward Voltage(Note 3)	V_{SD}	VGS=0V,IS=24A			1.2	V
Diode Forward Current(Note 2)	I_S				70	A
Reverse Recovery Time	T_{rr}	TJ = 25°C, IF = 80A di/dt = 100A/μs		32	50	nS
Reverse Recovery Charge	Qrr			12	20	nC
Forward Turn-On Time	t_{on}	Intrinsic turn-on time is negligible (turn-on is dominated by LS+LD)				

Note :

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t < 10 sec.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.

Typical Electrical and Thermal Characteristics

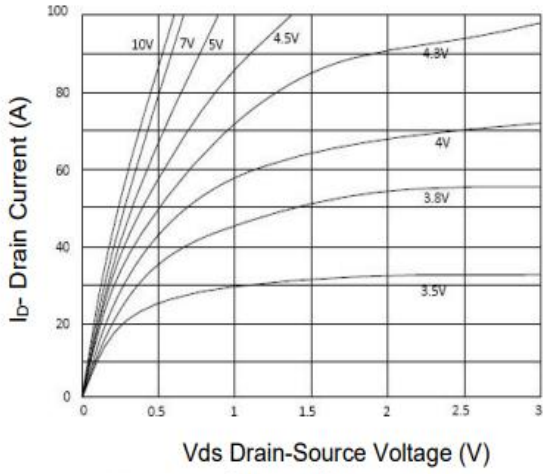


Figure 1 Output Characteristics

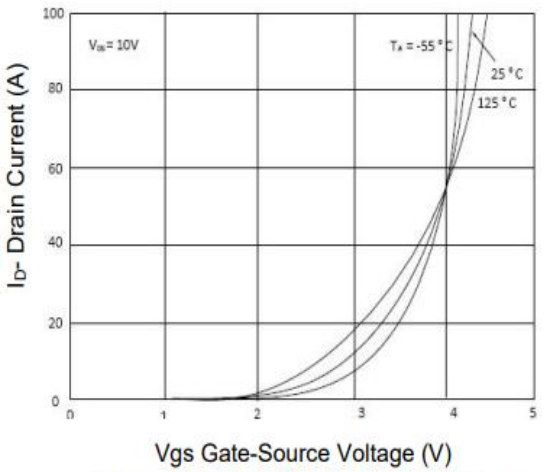


Figure 2 Transfer Characteristics

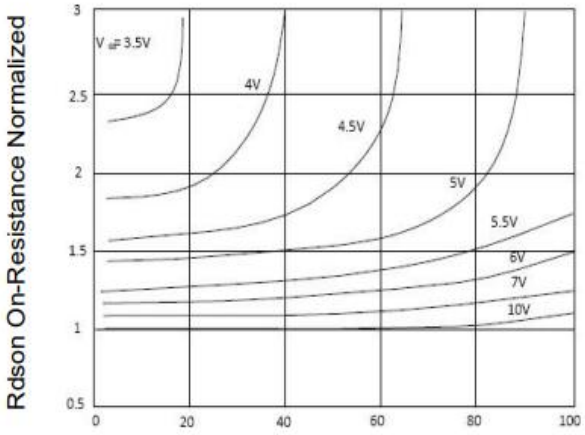


Figure 3 Rdson- Drain Current

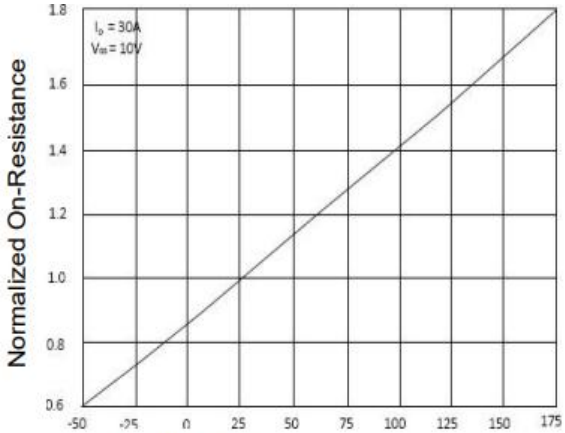


Figure 4 Rdson-JunctionTemperature

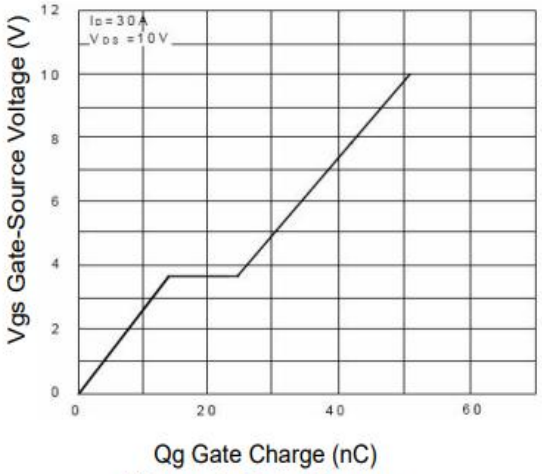


Figure 5 Gate Charge

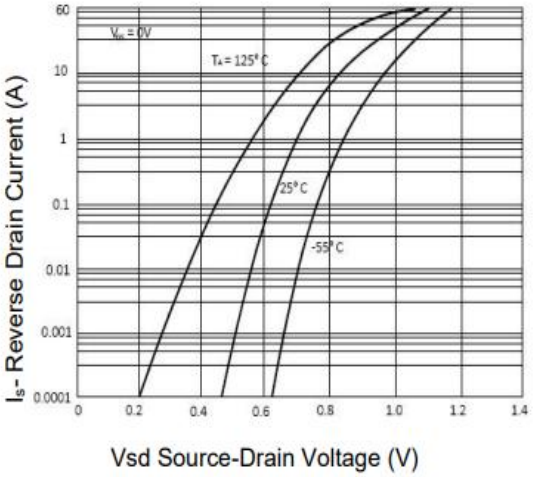


Figure 6 Source- Drain Diode Forward

Typical Electrical and Thermal Characteristics

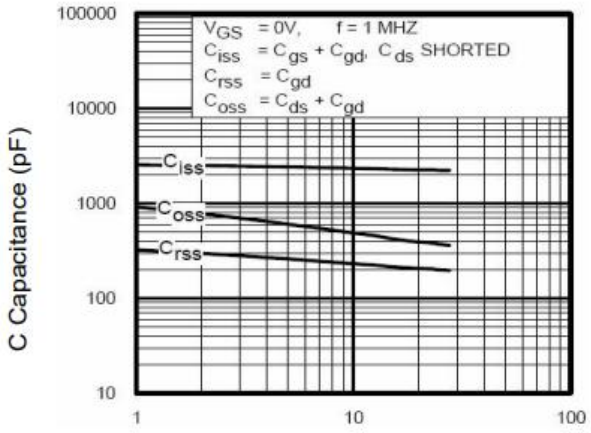


Figure 7 Capacitance vs Vds

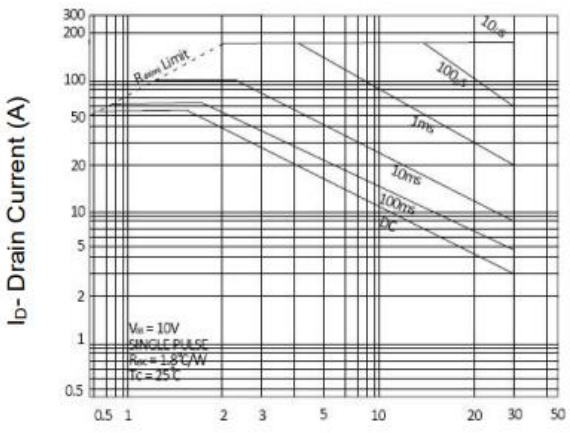


Figure 8 Safe Operation Area

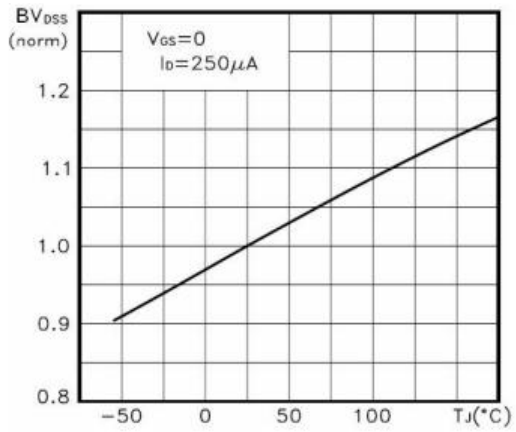


Figure 9 BV_{DSS} vs Junction Temperature

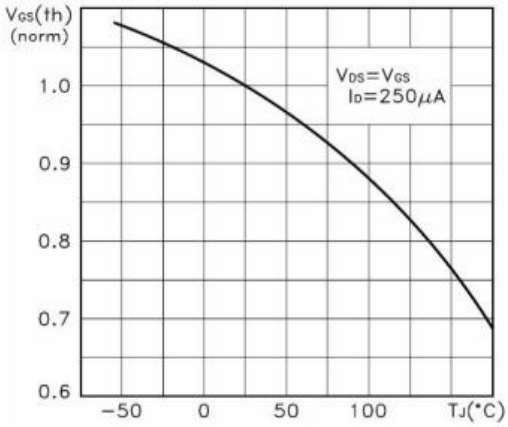


Figure 10 $V_{GS(th)}$ vs Junction Temperature

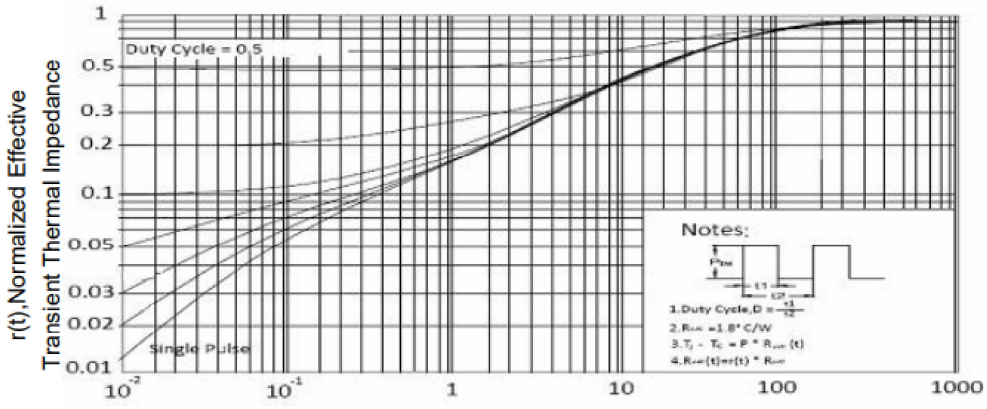
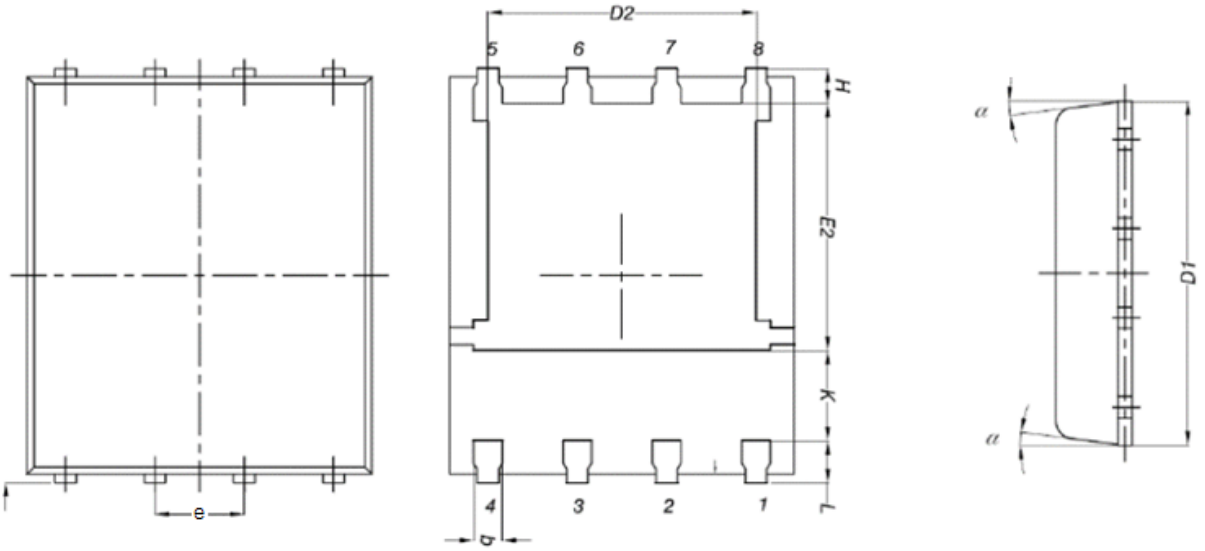
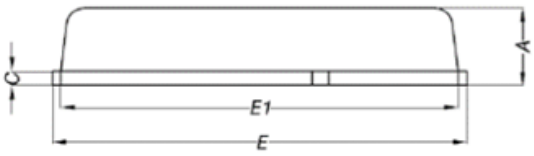


Figure 11 Normalized Maximum Transient Thermal Impedance

Physical Dimensions





DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.8	--	1.1
b	0.2	--	0.51
C	0.15	--	0.35
D1	4.8	--	5.3
D2	3.61	--	4.15
E	5.85	--	6.3
E1	5.45	--	6
E2	3.3	--	4.2
e	--	1.27	--
H	0.41	--	0.71
K	1.1	--	1.5
L	0.45	--	0.74
a	0°	--	12°