JY2605M

Dual N Channel Enhancement Mode Power MOSFET

GENERAL DESCRIPTION

The product utilizes the latest trench processing techniques to achieve the high cell density and reduces the on-resistance with low gate charge. These features combine to make this design an extremely efficient and reliable device for use in power switching application and a wide variety of other applications.

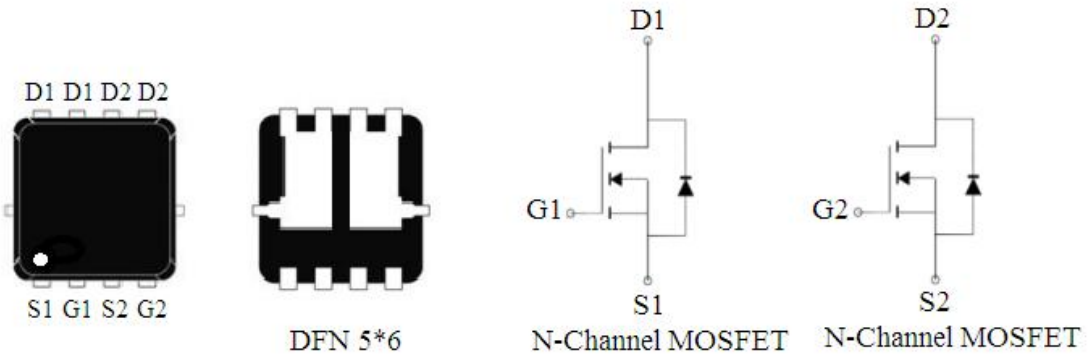
FEATURES

- 60V/50A, $R_{DS(ON)}$ =14mΩ@V_{GS}=10V(typical)
- Fast switching and reverse body recovery
- Fully characterized avalanche voltage and current
- Excellent package for good heat dissipation

APPLICATIONS

- Power Switching application
- Synchronous rectification
- Motor drive for 12V-24V Systems

PIN DESCRIPTION



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

Symbol	Parameter		Limit	Unit
V_{DS}	Drain-Source Voltage		60	V
V_{GS}	Gate-Source Voltage		±20	V
I_D	Continuous Drain Current	Tc=25° C	50	A
		Tc=100° C	35	
I_{DM}	Pulsed Drain Current		185	A
P_D	Maximum Power Dissipation		65	W
T_J T_{STG}	Operating Junction and Storage Temperature Range		-55 to +175	° C
$R_{\theta JC}$	Thermal Resistance-Junction to Case		2.3	° C/W

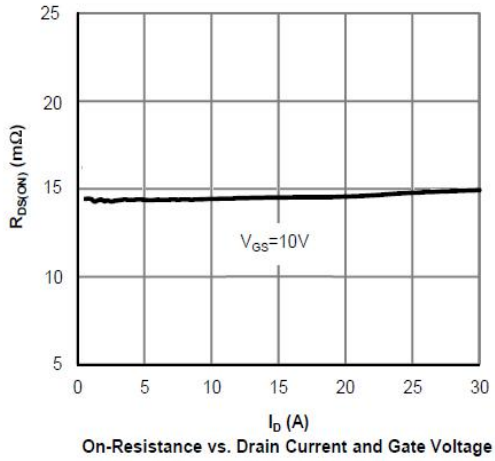
Electrical Characteristics(Ta=25° C Unless Otherwise Noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V,I_{DS}=250uA	60			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=60V,V_{GS}=0V			1	uA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±20V,V_{DS}=0V			±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}= V_{GS}, I_{DS}=250uA	1	1.7	2.5	V
$R_{DS(ON)}$	Drain-Source On-state Resistance	V_{GS}=10V,I_{DS}=15A		14	18	mΩ
		V_{GS}=4.5V,I_{DS}=8A		18	22	

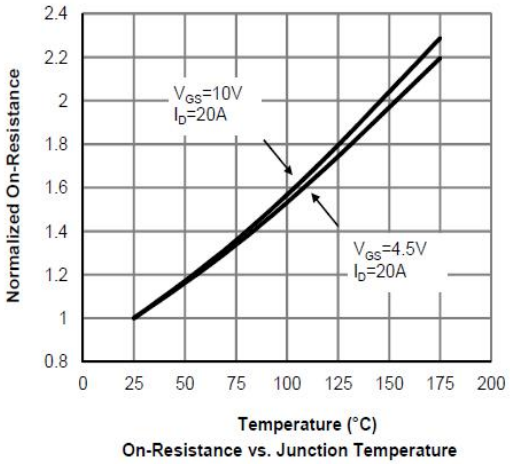
Electrical Characteristics(Ta=25ºC Unless Otherwise Noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V,I_{SD}=20A			1.2	V
Trr	Reverse Recovery Time	I_{SD}=20A di/dt=100A/us		36		ns
Qrr	Reverse Recovery Charge			40		nC
Dynamic Characteristics						
$T_{d(on)}$	Turn-on Delay Time	V_{DS}=30V, R_G=3Ω, I_{DS}=20A, V_{GS}=10V,		8		ns
Tr	Turn-on Rise Time			6.2		
$T_{d(off)}$	Turn-off Delay Time			28		
T_f	Turn-off Fall Time			5		
C_{ISS}	Input Capacitance	V_{GS}=0V, V_{DS}=25V, f=1.0MHz		2000		pF
C_{OSS}	Output Capacitance			160		
C_{RSS}	Reverse Transfer Capacitance			55		
Q_g	Total Gate Charge	V_{DS}=30V,I_D=20A, V_{GS}=10V		21	28	nC
Q_{gs}	Gate-Source Charge			7		
Q_{gd}	Gate-Drain Charge			5		

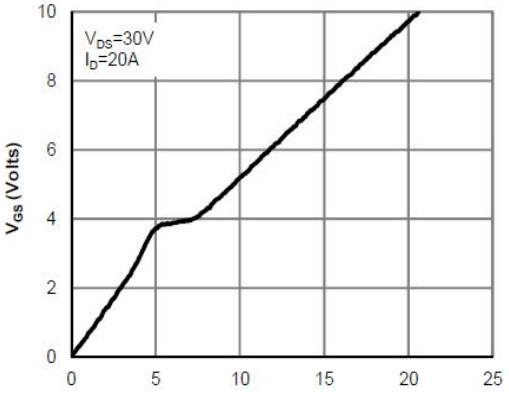
Typical electrical and thermal characteristics



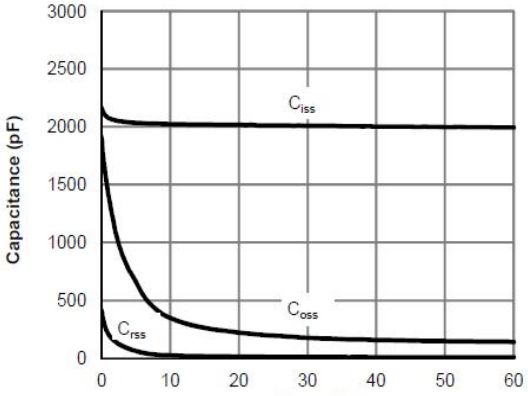
On-Resistance vs. Drain Current and Gate Voltage



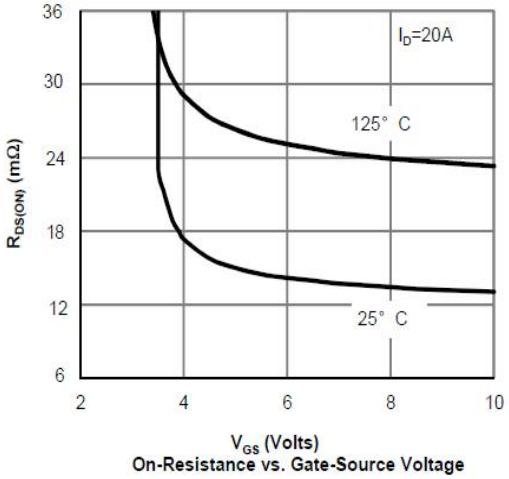
On-Resistance vs. Junction Temperature



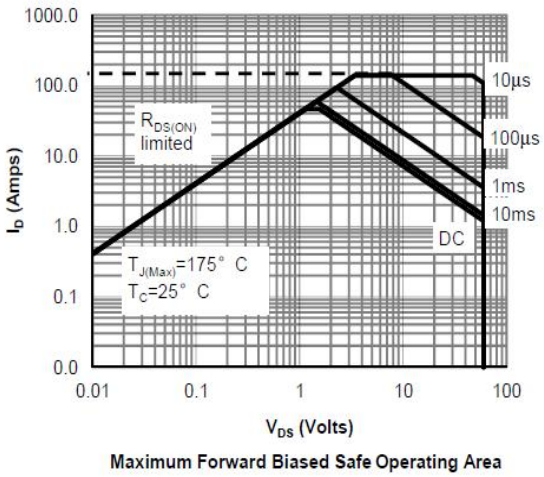
Gate-Charge Characteristics



Capacitance Characteristics

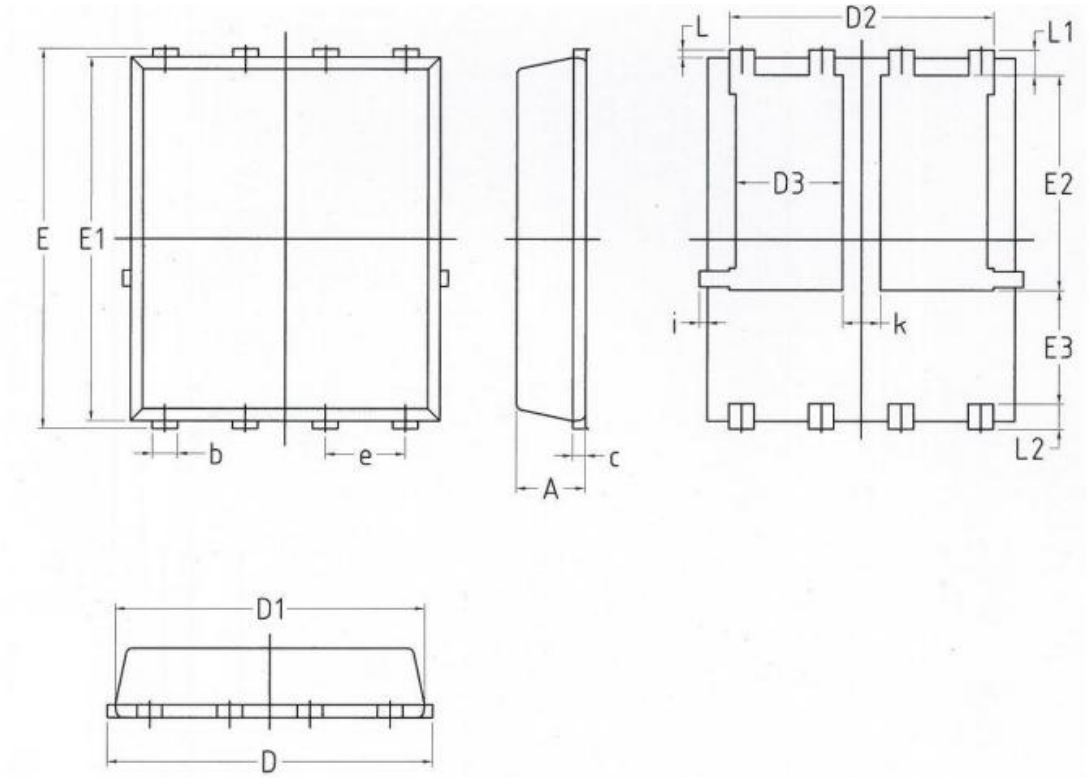


On-Resistance vs. Gate-Source Voltage



Maximum Forward Biased Safe Operating Area

DFN5*6 Package Outline



SYMBOL	COMMON			
	MM		INCH	
	MIN.	MAX.	MIN.	MAX.
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.203 BSC		0.0080 BSC	
D	4.80	5.40	0.1890	0.2126
D1	4.80	5.00	0.1890	0.1969
D2	4.11	4.31	0.1620	0.1700
D3	1.60	1.80	0.0629	0.0708
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	3.30	3.50	0.1300	0.1378
E3	1.70	/	0.0630	/
e	1.27 BSC		0.05 BSC	
L	0.05	0.25	0.0019	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
i	/	0.18	/	0.0070
k	0.5	0.7	0.0197	0.0276