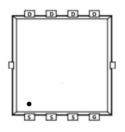
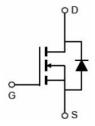


Main Product Characteristics:

V _{DSS}	40V
R _{DS} (on)	6.9mΩ(typ.)
I _D	68A







PQFN 5x6-8L

Pin Assignments

Schematic Diagram

Features and Benefits:

- Advanced MOSFET process technology
- Special designed for PWM, load switching and general purpose applications
- Ultra low on-resistance with low gate charge
- Fast switching and reverse body recovery
- 150°C operating temperature



Description:

It utilizes the latest processing techniques to achieve the high cell density and reduces the on-resistance with high repetitive avalanche rating. 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.

Absolute Max Rating:

Symbol	Parameter	Max.	Units	
I _D @ TC = 25°C	Continuous Drain Current,①	68	^	
I _{DM}	Pulsed Drain Current②	125	Α	
P _D @TC = 25°C	Power Dissipation③	1.67	W	
V _{DS}	Drain-Source Voltage	40	V	
V _{GS}	Gate-to-Source Voltage	± 20	V	
Eas	Single Pulse Avalanche Energy @ L=0.1mH	31	mJ	
T _J T _{STG}	Operating Junction and Storage Temperature Range	-55 to +150	°C	



Thermal Resistance

Symbol	Characterizes	Тур.	Max.	Units
Rejc	Junction-to-case ③	_	30	°C/W
ReJA	Junction-to-ambient (t $\leq 10s$) \oplus	_	85	°C/W

Electrical Characterizes @TA=25°C unless otherwise specified

Symbol	Parameter	Min.	Тур.	Max.	Units	Conditions
V _{(BR)DSS}	Drain-to-Source breakdown voltage	40	_	_	V	$V_{GS} = 0V, I_D = 250\mu A$
Б	Chatia Dania da Casana an assistance	_	6.9	8.5	mΩ	V _{GS} =10V,I _D =12A
R _{DS(on)}	Static Drain-to-Source on-resistance	_	10.5	15	mΩ	V _{GS} =4.5V,I _D =10A
V _{GS(th)}	Gate threshold voltage	1.2	_	2.5	V	$V_{DS} = V_{GS}, I_{D} = 250 \mu A$
I _{DSS}	Drain-to-Source leakage current	_	_	1	μA	V _{DS} =32V,V _{GS} = 0V
	Cata ta Caussa famusand la alcana	_	_	100	- 0	V _{GS} =20V
I _{GSS}	Gate-to-Source forward leakage	_	_	-100	nA	V _{GS} = -20V
Qg	Total gate charge	_	5.8	_		I _D = 12A,
Qgs	Gate-to-Source charge	_	3	_	nC	V _{DS} =20V,
Q _{gd}	Gate-to-Drain("Miller") charge	_	1.2	_		V _{GS} = 4.5V
t _{d(on)}	Turn-on delay time	_	14.3	_		\\ 40\\\\\\ 45\\
tr	Rise time	_	5.6	_		V _{GS} =10V, V _{DD} =15V,
t _{d(off)}	Turn-Off delay time	_	20	_	ns	$R_{GEN}=3.3\Omega$
t _f	Fall time	_	11	_		I _D = 1A
Ciss	Input capacitance	_	690	_		V _{GS} = 0V
Coss	Output capacitance	_	193	_	pF	V _{DS} = 15V
C _{rss}	Reverse transfer capacitance	_	38	_		f = 1MHz

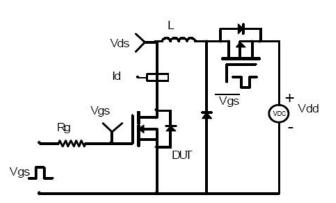
Source-Drain Ratings and Characteristics

Symbol	Parameter	Min.	Тур.	Max.	Units	Conditions
Is	Continuous Source Current (Body Diode)	_	_	30	A	MOSFET symbol showing the integral reverse p-n junction diode.
V _{SD}	Diode Forward Voltage	_	_	1	V	I _S =1A, V _{GS} =0V

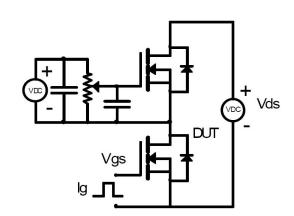


Test Circuits and Waveforms

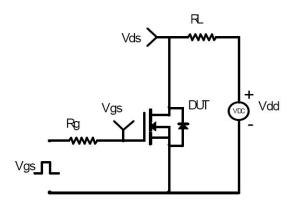
EAS Test Circuit:



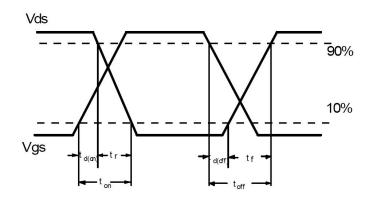
Gate Charge Test Circuit:



Switching Time Test Circuit:



Switching Waveforms:

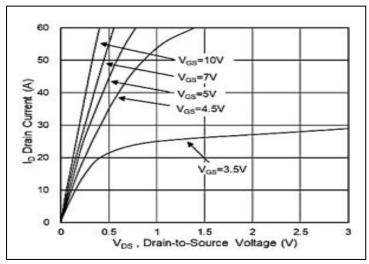


Notes:

- ①Calculated continuous current based on maximum allowable junction temperature.
- ②Repetitive rating; pulse width limited by max. junction temperature.
- $\ \ \,$ The power dissipation P_D is based on max. junction temperature, using junction-to-case thermal resistance.
- 4 The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C



Typical Electrical and Thermal Characteristics



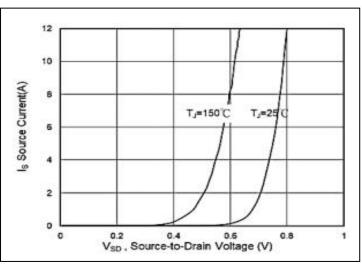
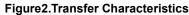
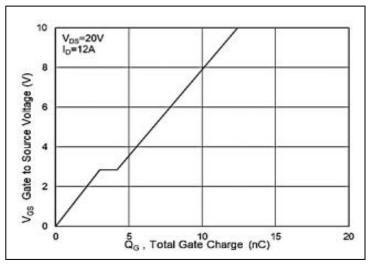


Figure 1. Typical Output Characteristics





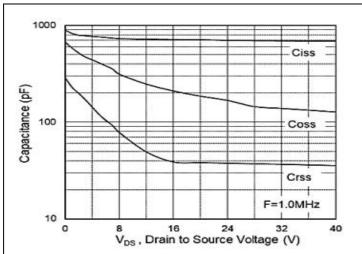
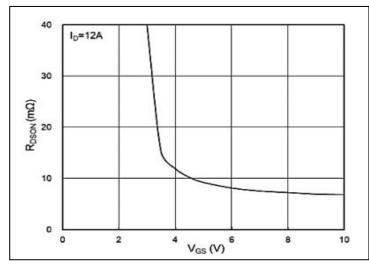


Figure 3. Gate-Charge Characteristics

Figure4.Capacitance



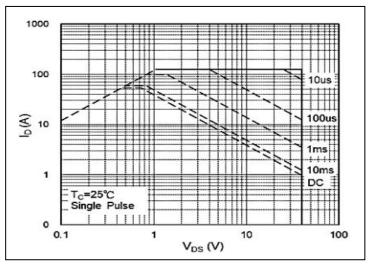


Figure 5. On-Resistance vs. G-S Voltage

Figure 6. Safe Operating Area





Typical Electrical and Thermal Characteristics

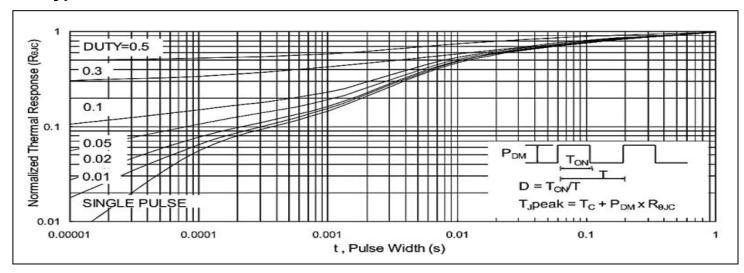
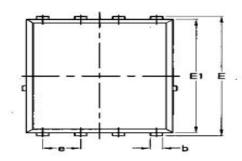


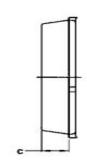
Figure 7. Normalized Maximum Transient Thermal Impedance

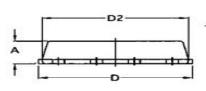


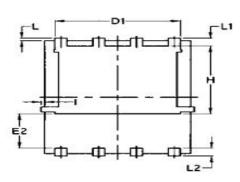
Mechanical Data:

PQFN 5x6-8L Package Outline(Unit:mm)









Symbol	Common						
	m	ım	Inch				
	Mim	Max	Min	Max			
Α	1.03	1.17	0.0406	0.0461			
b	0.34	0.48	0.0134	0.0189			
С	0.824	0.0970	0.0324	0.082			
D	4.80	5.40	0.1890	0.2126			
D1	4.11	4.31	0.1618	0.1697			
D2	4.80	5.00	0.1890	0.1969			
E	5.95	6.15	0.2343	0.2421			
E1	5.65	5.85	0.2224	0.2303			
E2	1.60	/	0.0630	/			
е	1.27	BSC	0.05	BSC			
L	0.05	0.25	0.0020	0.0098			
L1	0.38	0.50	0.0150	0.0197			
L2	0.38	0.50	0.0150	0.0197			
Н	3.30	3.50	0.1299	0.1378			
T	/	0.18	/	0.0070			





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