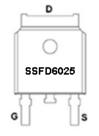
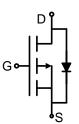


Main Product Characteristics:

V _{DSS}	-60V
R _{DS} (on)	12mΩ (typ.)
I _D	-60A







TO-252

Marking and pin Schematic diagram
Assignment

Features and Benefits:

- Advanced trench MOSFET process technology
- Special designed for PWM, load switching and general purpose applications
- Ultra low on-resistance with low gate charge
- High Power and current handing capability
- Fully Avalanche Rated



Description:

It utilizes the advanced trench processing techniques to achieve extremely low on resistance and low gate charge. These features combine to make this design an extremely efficient and reliable device for use in PWM, load switching and a wide variety of other applications.

Absolute max Rating:

Symbol	Parameter	Max.	Units
I _D @ T _C = 25°C	Continuous Drain Current, V _{GS} @ 10V①	-60	
I _D @ T _C = 100°C	Continuous Drain Current, V _{GS} @ 10V①	-50	Α
I _{DM}	Pulsed Drain Current2	-240	A
I _{SM}	Pulsed Source Current (Body Diode)②	-240	
P _D @T _C = 25°C	Power Dissipation ③	166	W
V _{DS}	Drain-Source Voltage	-60	٧
V _{GS}	Gate-to-Source Voltage	± 20	٧
Eas	Single Pulse Avalanche Energy @ L=0.3mH	300	mJ
I _{AS}	Single Pulse Avalanche Current @ L=0.3mH	44	Α
TJ	Operating Junction and	-55 to + 150	လင
T _{STG}	Storage Temperature Range	-55 (0 + 150	



Thermal Resistance

Symbol	Characterizes	Value	Unit
$R_{\theta JA}$	Junction-to-ambient (t $\leq 10s$) (4)	62	°C/W
Rejc	Maximum Junction-to-Case 5	0.75	°C/W

Electrical Characterizes $@T_A=25^{\circ}C$ unless otherwise specified

Symbol	Parameter		Тур.	Max.	Units	Conditions
BV_{DSS}	Drain-to-Source breakdown voltage	-60	_	_	V	$V_{GS} = 0V$, $I_{D} = -250 \mu A$
R _{DS(on)}	Static Drain-to-Source		12	25	mΩ	V _{GS} =-10V, I _D =- 23A
	OII-TESISIATICE	-	22			T _J = 125℃
$V_{\text{GS(th)}}$	Gate threshold voltage	-2	-2.6	-4	V	$V_{DS} = V_{GS}$, $I_D = -250$ uA
		_		-1		$V_{DS} = -60V, V_{GS} = 0V$
I _{DSS}	Drain-to-Source leakage current	_	_	-50	μΑ	T _J = 125°C
	Gate-to-Source forward leakage	_	_	100		V _{GS} =20V
I _{GSS}	Gate-to-Source reverse leakage		nA	V _{GS} = -20V		
Qg	Total gate charge	_	_	170		I _D =-30A,
Qgs	Gate-to-Source charge	_	_	30	nC	V _{DD} =-40V,
Qgd	Gate-to-Drain("Miller") charge	_	_	70		V _{GS} =-10V
td(on)	Turn-on delay time	_	15.2	_		V 20VI 20A
tr	Rise time	_	23.7	_		V _{DD} =-30V,I _D =-20A,
td(off)	Turn-Off delay time		53.3	_	ns	R_L =1.50 Ω , R_G =3.00 Ω , V_{GS} =-10 V
tf	Fall time		12.7			v GS-110 v
Ciss	Input capacitance		7456			V _{DS} =-25V,
Coss	Output capacitance Reverse transfer capacitance		376	_	pF	V _{GS} =0V,
Crss			293			f=1MHZ

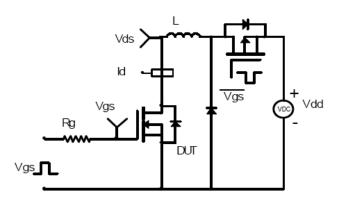
Source-Drain Ratings and Characteristics

Symbol	Parameter	Min.	Тур.	Max.	Units	Conditions	
	Maximum Body-Diode		60		^	MOSFET symbol	
I _S	Continuous Current	-	-60	_	Α	showing the	
	Maximum Body-Diode Pulse		-240		۸	integral reverse	
I _{SM}	Current	_	-240	_	Α	p-n junction diode.	
V _{SD}	Diode Forward Voltage	_	-0.74	-1.2	V	T _J =25°C,I _S =-10A,V _{GS} =0V	
t _{rr}	Reverse Recovery Time	_	38.2	_	nS	$T_J = 25^{\circ}\text{C}$, $I_F = -20\text{A}$, $di/dt = -20\text{A}$	
Q _{rr}	Reverse Recovery Charge	_	62.5	_	nC	100A/µs	

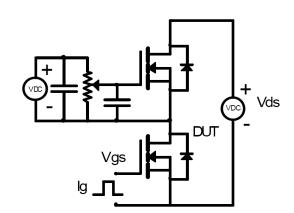


Test circuits and Wave forms

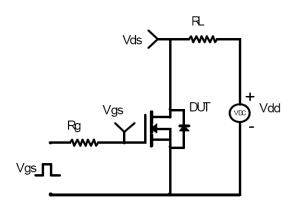
EAS Test Circuit:



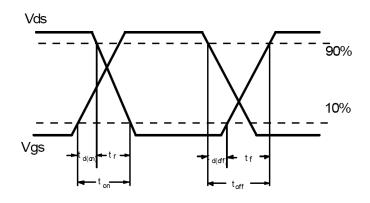
Gate charge test circuit:



Switching Time Test Circuit:



Switching Waveforms:



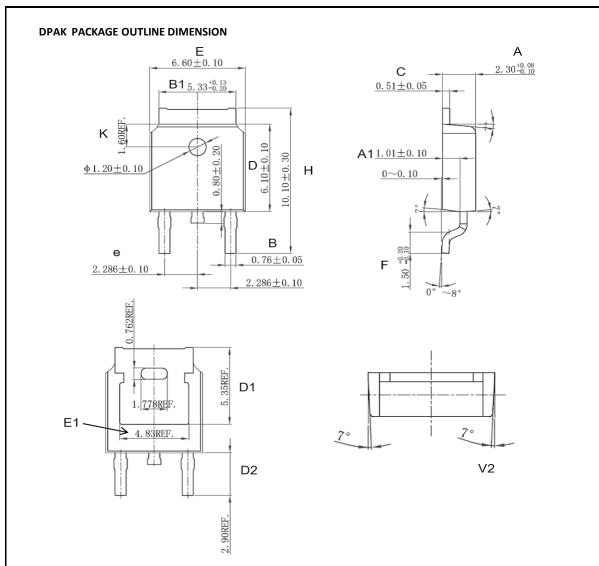
Version: 1.0

Notes:

- ①Calculated continuous current based on maximum allowable junction temperature.
- ②Repetitive rating; pulse width limited by max. junction temperature.
- 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



Mechanical Data:



Cumbal	Dim	ension In Millim	eters	Di	mension In Inch	es
Symbol	Min	Nom	Max	Min	Nom	Max
Α	2.200	2.300	2.380	0.087	0.091	0.094
A1	0.910	1.010	1.110	0.036	0.040	0.044
В	0.710	0.760	0.810	0.028	0.030	0.032
B1	5.130	5.330	5.460	0.202	0.210	0.215
С	0.460	0.510	0.560	0.018	0.020	0.022
D	6.000	6.100	6.200	0.236	0.240	0.244
D1		5.350 (REF)			0.211 (REF)	
D2		2.900 (REF)			0.114 (REF)	
Е	6.500	6.600	6.700	0.256	0.260	0.264
E1		4.83 (REF)			0.190 (REF)	
е	2.186	2.286	2.386	0.086	0.090	0.094
Н	9.800	10.100	10.400	0.386	0.398	0.409
F	1.400	1.500	1.700	0.055	0.059	0.067
K		1.600 (REF)			0.063 (REF)	
V2	8 ⁰ (REF)				8 ⁰ (REF)	



Ordering and Marking Information

Device Marking: SSFD6025

Package (Available)
TO-252
Operating Temperature Range
C:-55 to 150°C

Devices per Unit

Option1:

Package Type	Units/Tape	Tapes/Inner Box	Units/Inner Box	Inner Boxes/Carton	Units/Carton Box
				Box	
TO-252	2500	2	5000	7	35000

Option2:

Package	Units/Tape	Tapes/Inner	Units/Inner	Inner	Units/Carton
Type		Box	Box	Boxes/Carton	Box
				Box	
TO-252	2500	1	2500	10	25000

Reliability Test Program

Test Item	Conditions	Duration	Sample Size
High	T _j =125℃ to 150℃ @	168 hours	3 lots x 77 devices
	80% of Max	500 hours	
Temperature	V _{DSS} /V _{CES} /VR	1000 hours	
Reverse			
Bias(HTRB)			
High	T _j =150℃	168 hours	3 lots x 77 devices
Temperature	@ 100% of Max V _{GSS}	500 hours	
Gate		1000 hours	
Bias(HTGB)			



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