

DESCRIPTION

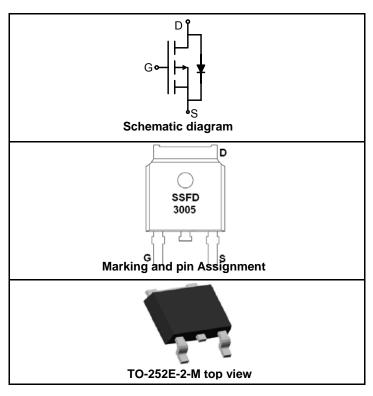
The SSFD3005 uses advanced trench technology to provide excellent $R_{\rm DS(ON)}$ and low gate charge .This device is suitable for use as a load switch or in PWM applications.

GENERAL FEATURES

- V_{DS} =- 30V, I_{D} =-10A $R_{DS(ON)}$ < 7.5mΩ @ V_{GS} =-10V $R_{DS(ON)}$ < 6mΩ @ V_{GS} =-20V
- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package

Application

- ●PWM applications
- Load switch
- Power management



PACKAGE MARKING AND ORDERING INFORMATION

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
SSFD3005	SSFD3005	TO-252E-2-M	-	-	-

ABSOLUTE MAXIMUM RATINGS(TA=25 ℃ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DS}	-30	V
Gate-Source Voltage	V _G S	±25	V
	I _D (25℃)	-85	А
Drain Current-Continuous@ Current-Pulsed (Note 1)	I _D (70℃)	-68	А
	I _{DM}	-200	А
Maximum Power Dissipation	P _D	100	W
Operating Junction and Storage Temperature Range	T_{J}, T_{STG}	-55 To 150	$^{\circ}$

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Ambient (Note 2)	R _{eJA}	41	°C/W
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ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Тур	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =-250μA	-30			V

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Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-24V,V _{GS} =0V			-1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±25V,V _{DS} =0V			±100	nA
ON CHARACTERISTICS (Note 3)	1					
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _D =-250μA	-1.5	-2.5	-3.5	V
Drain-Source On-State Resistance	В	V _{GS} =-10V, I _D =-20A		6.3	7.5	mΩ
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =-20V, I _D =-20A		5.1	6	mΩ
Forward Transconductance	g FS	V _{DS} =-5V,I _D =-20A	20			S
DYNAMIC CHARACTERISTICS (Note4)						
Input Capacitance	C _{lss}			4300		PF
Output Capacitance	Coss	V _{DS} =-15V,V _{GS} =0V, F=1.0MHz		1000		PF
Reverse Transfer Capacitance	C _{rss}			750		PF
SWITCHING CHARACTERISTICS (Note 4)						
Turn-on Delay Time	t _{d(on)}			20		nS
Turn-on Rise Time	t _r	V_{DS} =-15V, V_{GS} =-10V, R_{GEN} =3 Ω		30		nS
Turn-Off Delay Time	$t_{d(off)}$	I _D =1A		50		nS
Turn-Off Fall Time	t _f			35		nS
Total Gate Charge	Qg			95		nC
Gate-Source Charge	Q _{gs}	V _{DS} =-15V,I _D =-20A,V _{GS} =-10V		20		nC
Gate-Drain Charge	Q_{gd}			30		nC
Body Diode Reverse Recovery Time	T _{rr}	L- 204 dl/dt-1004/::2		40		nS
Body Diode Reverse Recovery Charge	Q _{rr}	- I _F =-20A, dl/dt=100A/μs		30		nC
DRAIN-SOURCE DIODE CHARACTERISTIC	cs					
Diode Forward Voltage (Note 3)	V _{SD}	V _{GS} =0V,I _S =-1A		-0.72	-1	V

NOTES:

- Repetitive Rating: Pulse width limited by maximum junction temperature.
 Surface Mounted on 1in² FR4 Board, t ≤ 10 sec.
 Pulse Test: Pulse Width ≤ 300µs, Duty Cycle ≤ 2%.
 Guaranteed by design, not subject to production testing.



TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

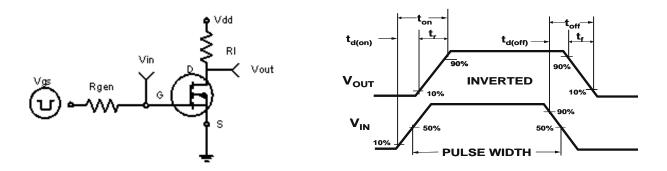
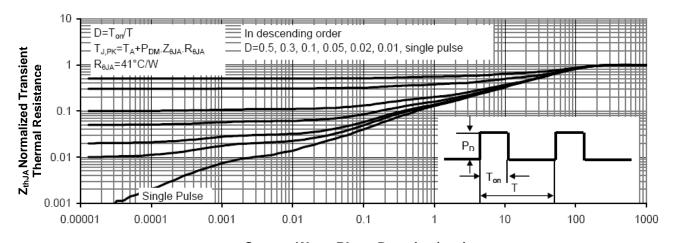


Figure 1:Switching Test Circuit

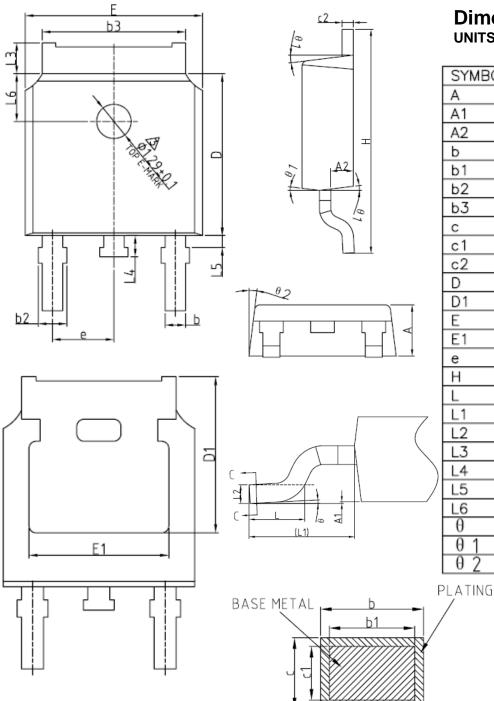
Figure 2:Switching Waveforms



Square Wave Pluse Duration(sec)
Figure 3 Normalized Maximum Transient Thermal Impedance



TO-252E-2-M PACKAGE INFORMATION



Dimensions in Millimeters UNITS:mm

SYMBOL	MIN	NOM	MAX		
Α	2.20	2.30	2.38		
A1	0	_	0.10		
A2	0.90	1.01	1.10		
b	0.72	-	0.85		
b1	0.71	0.76	0.81		
b2	0.72	_	0.90		
b3	5.13	5.33	5.46		
С	0.47	_	0.60		
c1	0.46	0.51	0.56		
c2	0.47	_	0.60		
D	6.00	6.10	6.20		
D1	5.25	_	_		
E	6.50	6.60	6.70		
E1	4.70	_	_		
е	2.186	2.286	2.386		
Н	9.80	10.10	10.40		
L	1.40	1.50	1.70		
L1		2.90REF			
L2 L3		0.51BSC			
L3	0.90	_	1.25		
L4	0.60	0.80	1.00		
L5	0.15	_	0.75		
L6	1.80REF				
θ	0°	_	8°		
θ 1	5°	7°	9*		
θ 2	5°	7°	9°		

NOTES:

- 1. Dimensions are inclusive of plating
 2. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 6 mils.
- 3. Dimension L is measured in gauge plane.
- 4. Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.



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