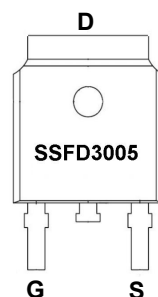
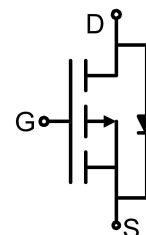


**Main Product Characteristics:**

$V_{DSS}$	-30V
$R_{DS(on)}$	6.3mΩ(typ)
$I_D$	-85A


**TO-252**

**Marking and 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
$I_D @ T_C = 25^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10\text{V}$ ①	-85	A
$I_D @ T_C = 70^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10\text{V}$ ①	-68	
$I_{DM}$	Pulsed Drain Current	-200	
$P_D @ T_C = 25^\circ\text{C}$	Power Dissipation ②	100	W
$V_{DS}$	Drain-Source Voltage	-30	V
$V_{GS}$	Gate-to-Source Voltage	± 25	V
$T_J \quad T_{STG}$	Operating Junction and Storage Temperature Range	-55 to +150	°C

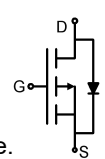
## Thermal Resistance

Symbol	Characterizes	Typ.	Max.	Units
R <sub>θJA</sub>	Junction-to-ambient (t ≤ 10s) ③	—	41	°C/W

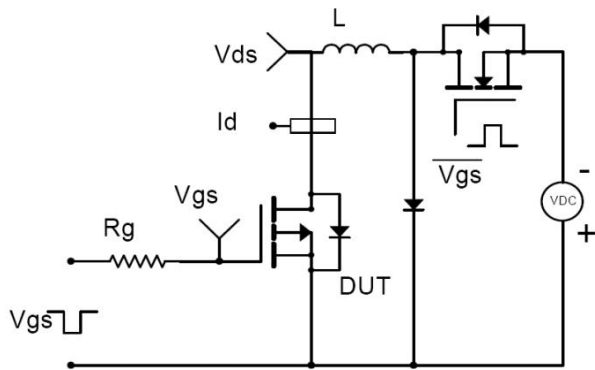
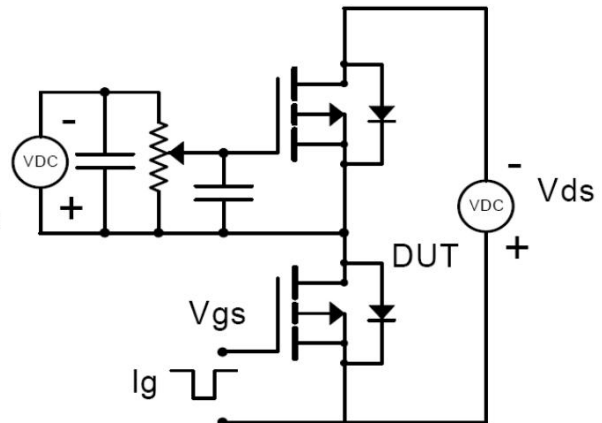
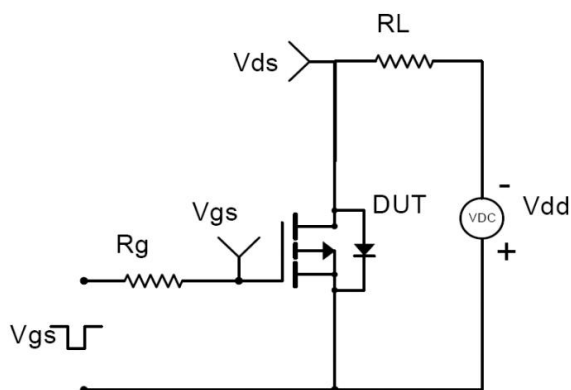
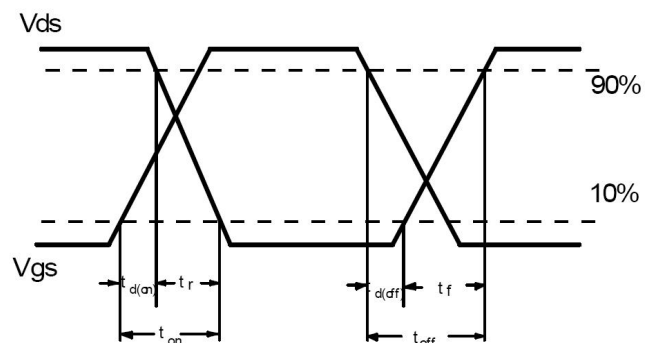
## Electrical Characterizes @T<sub>A</sub>=25°C unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
V <sub>(BR)DSS</sub>	Drain-to-Source breakdown voltage	-30	—	—	V	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA
R <sub>DS(on)</sub>	Static Drain-to-Source on-resistance	—	6.3	7.5	mΩ	V <sub>GS</sub> =-10V, I <sub>D</sub> = -20A
		—	5.1	6	mΩ	V <sub>GS</sub> =-20V, I <sub>D</sub> = -20A
g <sub>FS</sub>	Forward Transconductance	20	—	—	S	V <sub>DS</sub> =-5V, I <sub>D</sub> =-20A
V <sub>GS(th)</sub>	Gate threshold voltage	-1.5	—	-3.5	V	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA
I <sub>DSS</sub>	Drain-to-Source leakage current	—	—	-1	μA	V <sub>DS</sub> = -24V, V <sub>GS</sub> = 0V
I <sub>GSS</sub>	Gate-to-Source forward leakage	—	—	100	nA	V <sub>GS</sub> = 25V
		—	—	-100		V <sub>GS</sub> = -25V
C <sub>iss</sub>	Input capacitance	—	4300	—	pF	V <sub>GS</sub> = 0V
C <sub>oss</sub>	Output capacitance	—	1000	—		V <sub>DS</sub> = -15V
C <sub>rss</sub>	Reverse transfer capacitance	—	750	—		f = 1MHz
Q <sub>g</sub>	Total gate charge	—	95	—	nC	I <sub>D</sub> = -20A,
Q <sub>gs</sub>	Gate-to-Source charge	—	20	—		V <sub>DS</sub> =-15V,
Q <sub>gd</sub>	Gate-to-Drain("Miller") charge	—	30	—		V <sub>GS</sub> = -10V
t <sub>d(on)</sub>	Turn-on delay time	—	20	—	ns	V <sub>GS</sub> =-10V, V <sub>DD</sub> = -15V, R <sub>GEN</sub> =3Ω, I <sub>D</sub> = -1A
t <sub>r</sub>	Rise time	—	30	—		
t <sub>d(off)</sub>	Turn-Off delay time	—	50	—		
t <sub>f</sub>	Fall time	—	35	—		

## Source-Drain Ratings and Characteristics

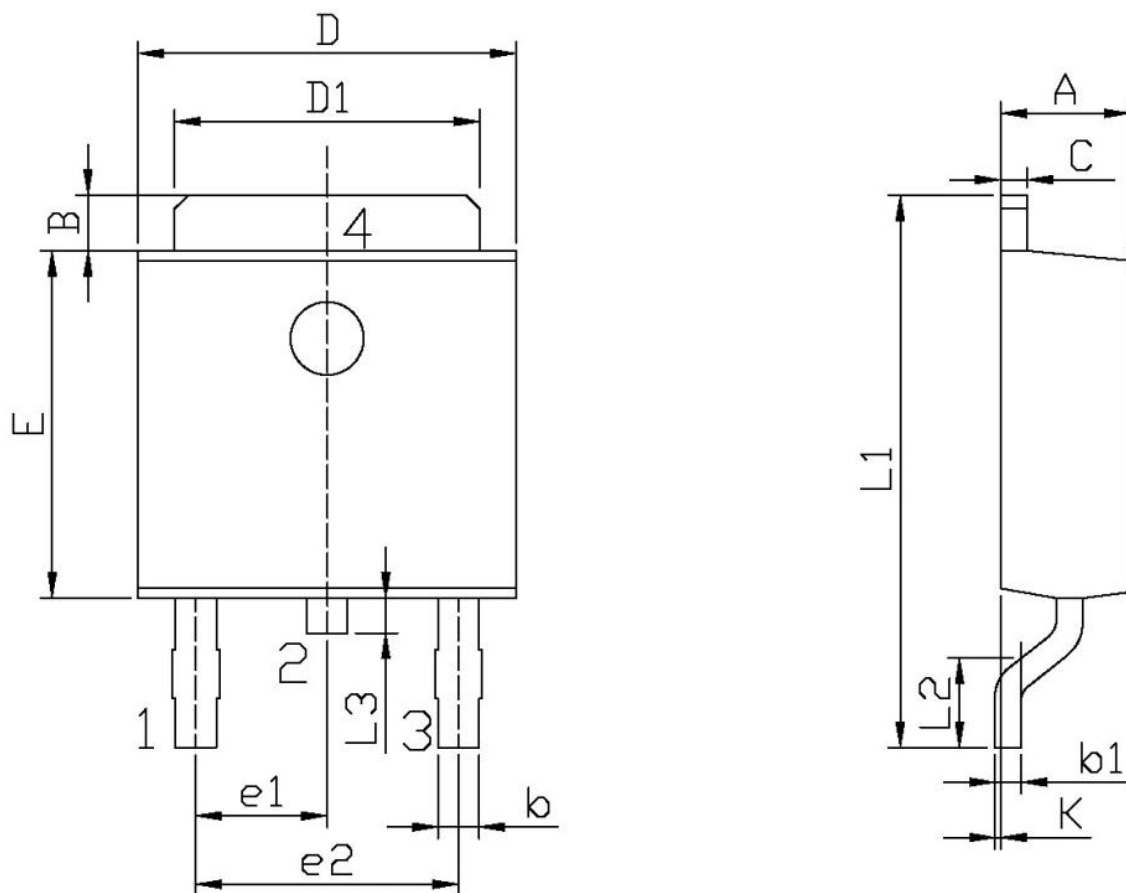
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I <sub>S</sub>	Continuous Source Current (Body Diode)	—	—	-85	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I <sub>SM</sub>	Pulsed Source Current (Body Diode)	—	—	-200	A	
V <sub>SD</sub>	Diode Forward Voltage	—	—	-1	V	I <sub>S</sub> =-1A, V <sub>GS</sub> =0V
t <sub>rr</sub>	Reverse Recovery Time	—	40	—	ns	T <sub>J</sub> = 25°C, I <sub>F</sub> = -20A, di/dt =
Q <sub>rr</sub>	Reverse Recovery Charge	—	30	—	nC	100A/μs

## Test Circuits and Waveforms

**EAS Test Circuit:**

**Gate Charge Test Circuit:**

**Switching Time Test Circuit:**

**Switching Waveforms:**


### Notes:

- ① Calculated continuous current based on maximum allowable junction temperature.
- ② Repetitive rating; pulse width limited by max. junction temperature.
- ③ The power dissipation  $P_D$  is based on max. junction temperature, using junction-to-case thermal resistance.

**Mechanical Data:**
**Unit:mm**


Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	2.20	2.40	E	5.95	6.25
B	0.95	1.25	e1	2.24	2.34
b	0.50	0.90	e2	4.43	4.73
b1	0.45	0.55	L1	9.45	9.95
C	0.45	0.55	L2	1.25	1.75
D	6.45	6.75	L3	0.60	0.90
D1	5.10	5.50	K	0.00	0.10

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