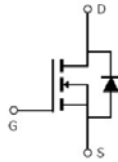
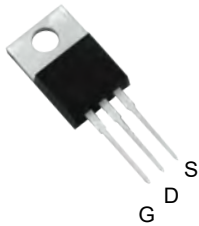
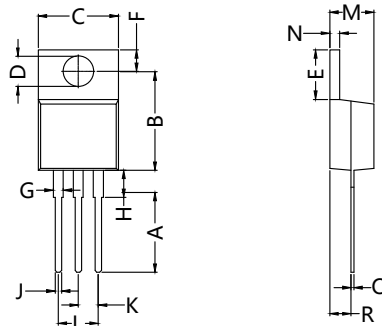


SMOS75N75A2

N Channel Power MOSFET



Dimensions TO-220AB



Dim.	Millimeter	
	Min.	Max.
A	12.70	13.97
B	14.73	16.00
C	9.91	10.66
ØD	3.54	4.08
E	5.85	6.85
F	2.54	3.18
G	1.15	1.65
H	2.79	5.84
J	0.64	1.01
K	2.45BSC	
L	5.05BSC	
M	4.32	4.82
N	1.14	1.39
Q	0.35	0.56
R	2.29	2.79

	V _{DSS} V	I _D A	R _{DS(ON)} mΩ
SMOS75N75A2	75	80	6.50

Absolute max Rating:

Symbol	Parameter	Max.	Units
I _D @ T _C = 25°C	Continuous Drain Current, V _{GS} @ 10V	80	A
I _D @ T _C = 100°C	Continuous Drain Current, V _{GS} @ 10V	75	
I _{DM}	Pulsed Drain Current	320	
P _D @ T _C = 25°C	Power Dissipation	187	W
	Linear Derating Factor	2.0	W/°C
V _{DS}	Drain-Source Voltage	75	V
V _{GS}	Gate-to-Source Voltage	± 20	V
E _{AS}	Single Pulse Avalanche Energy @ L=0.3mH	375	mJ
I _{AR}	Avalanche Current @ L=0.3mH	50	A
T _J / T _{STG}	Operating Junction and Storage Temperature Range	-55 to + 175	°C

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
- Fast switching and reverse body recovery
- 175°C operating temperature



Sirectifier®

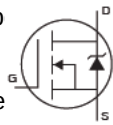
SMOS75N75A2

N Channel Power MOSFET

Electrical Characterizes @T_A=25°C unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
V _{(BR)DSS}	Drain-to-Source breakdown voltage	75	—	—	V	V _{GS} = 0V, I _D = 250μA
R _{DS(on)}	Static Drain-to-Source on-resistance	—	6.5	8	mΩ	V _{GS} =10V, I _D = 30A
		—	12.5	13		T _J = 125°C
V _{GS(th)}	Gate threshold voltage	2	—	4	V	V _{DS} = V _{GS} , I _D = 250μA
		—	2.35	—		T _J = 125°C
I _{DSS}	Drain-to-Source leakage current	—	—	1	μA	V _{DS} = 75V, V _{GS} = 0V
		—	—	50		T _J = 125°C
I _{GSS}	Gate-to-Source forward leakage	—	—	100	nA	V _{GS} = 20V
		-100	—	—		V _{GS} = -20V
Q _g	Total gate charge	—	93.6	—	nC	I _D = 30A, V _{DS} =30V, V _{GS} = 10V
Q _{gs}	Gate-to-Source charge	—	20.2	—		
Q _{gd}	Gate-to-Drain("Miller") charge	—	33.3	—		
t _{d(on)}	Turn-on delay time	—	17.3	—	ns	V _{GS} =10V, V _{DS} =30V, R _L =15Ω, R _{GEN} =2.5Ω
t _r	Rise time	—	15.2	—		
t _{d(off)}	Turn-Off delay time	—	52	—		
t _f	Fall time	—	19	—		
C _{iss}	Input capacitance	—	4373	—	pF	V _{GS} = 0V
C _{oss}	Output capacitance	—	352	—		V _{DS} = 25V
C _{rss}	Reverse transfer capacitance	—	306	—		f = 1MHz

Source-Drain Ratings and Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I _S	Continuous Source Current (Body Diode)	—	—	80	A	MOSFET symb showing the integral reverse p-n junction diode. 
I _{SM}	Pulsed Source Current (Body Diode)	—	—	320	A	
V _{SD}	Diode Forward Voltage	—	0.85	1.3	V	I _S =30A, V _{GS} =0V
t _{rr}	Reverse Recovery Time	—	36	—	ns	T _J = 25°C, I _F = 75A,
Q _{rr}	Reverse Recovery Charge	—	62	—	nC	di/dt = 100A/μs

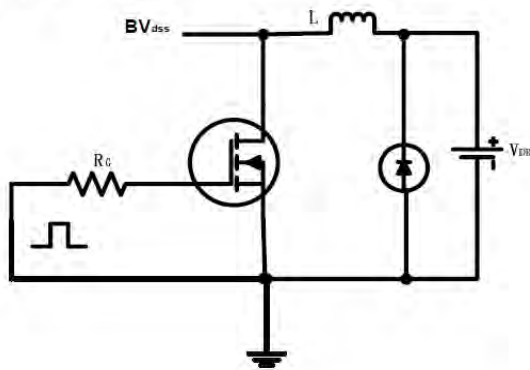
Symbol	Characterizes	Typ.	Max.	Units
R _{θJC}	Junction-to-case	—	0.8	°C/W
R _{θJA}	Junction-to-ambient (t≤10s)	—	62	°C/W
	Junction-to-Ambient (PCB mounted, steady-state)	—	40	°C/W

SMOS75N75A2

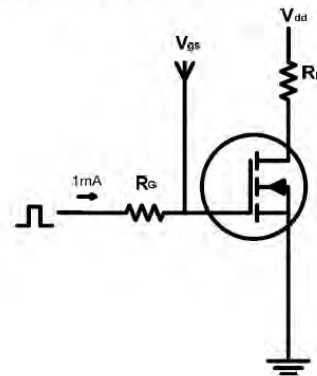
N Channel Power MOSFET

Test circuits and Waveforms

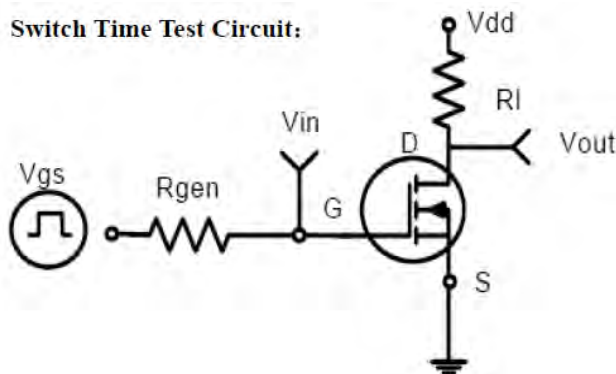
EAS test circuits:



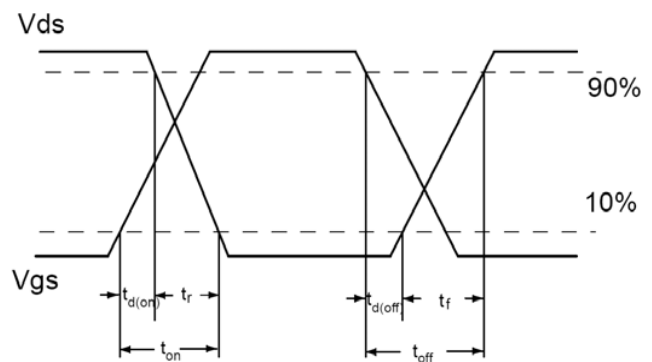
Gate charge test circuit:



Switch Time Test Circuit:



Switch Waveforms:



Notes:

- ① The maximum current rating is limited by bond-wires.
- 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.
- ④ The value of $R_{\theta JA}$ is measured with the device mounted on 1in 2 FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$
- ⑤ These curves are based on the junction-to-case thermal impedance which is measured with the device mounted to a large heatsink, assuming a maximum junction temperature of $T_{J(MAX)} = 175^\circ\text{C}$.
- ⑥ The maximum current rating is limited by bond-wires.

SMOS75N75A2

N Channel Power MOSFET

Typical electrical and thermal characteristics

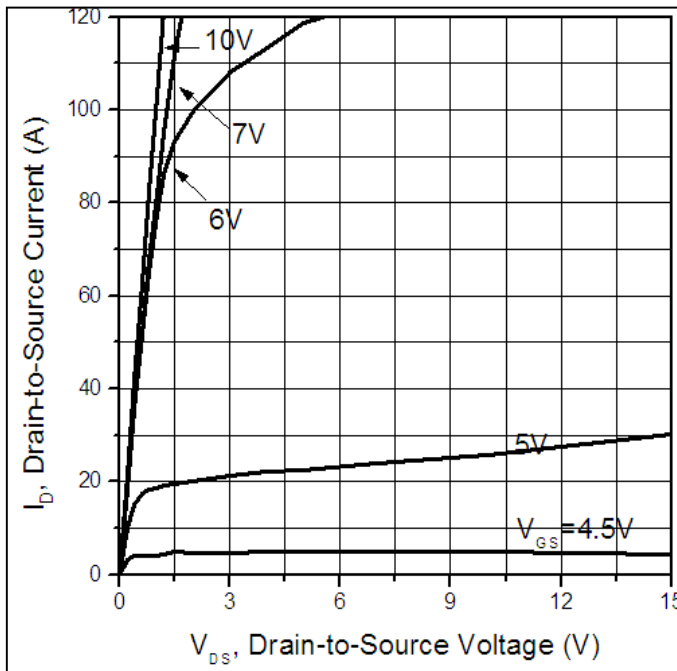


Figure 1: Typical Output Characteristics

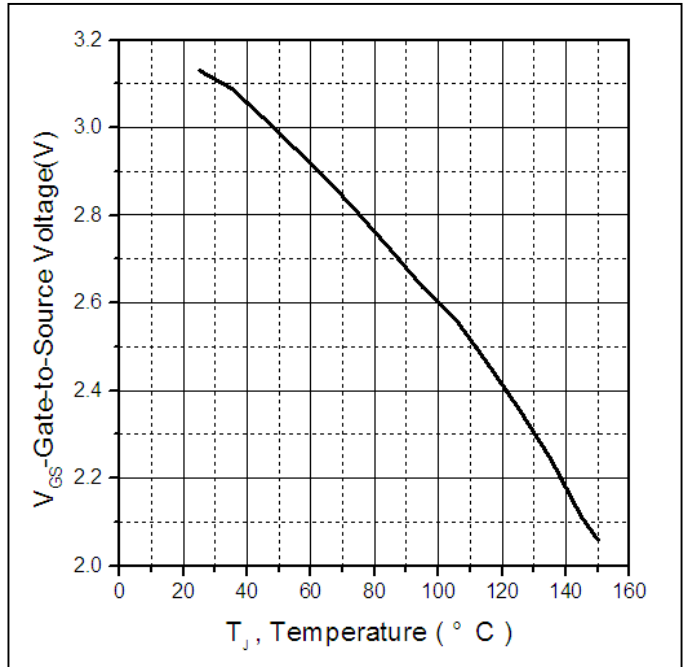


Figure 2. Gate to source cut- off voltage

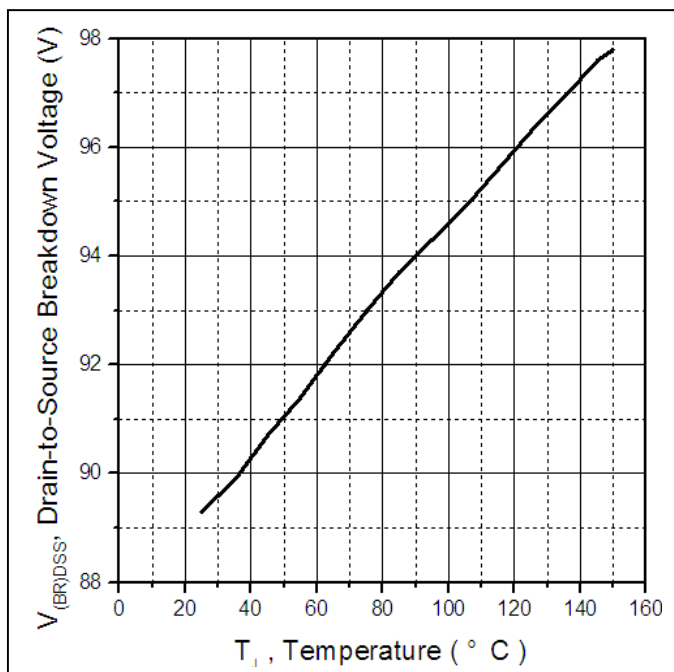


Figure 3. Drain-to-Source Breakdown Voltage
vs. Temperature

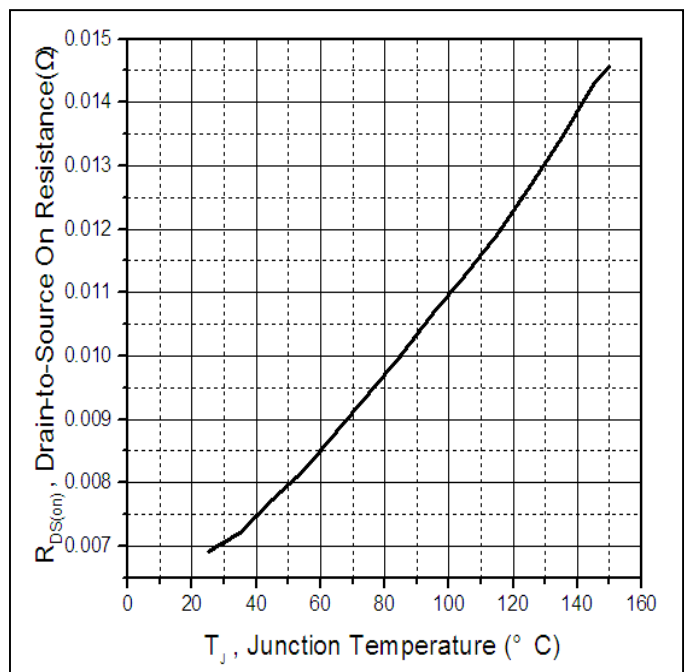


Figure 4: Normalized On-Resistance Vs. Case
Temperature

SMOS75N75A2

N Channel Power MOSFET

Typical electrical and thermal characteristics

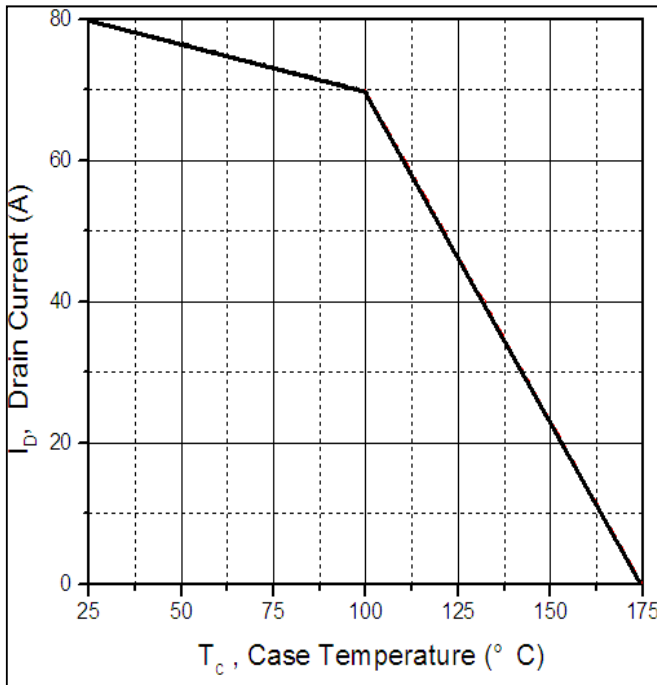


Figure 5. Maximum Drain Current Vs. Case Temperature

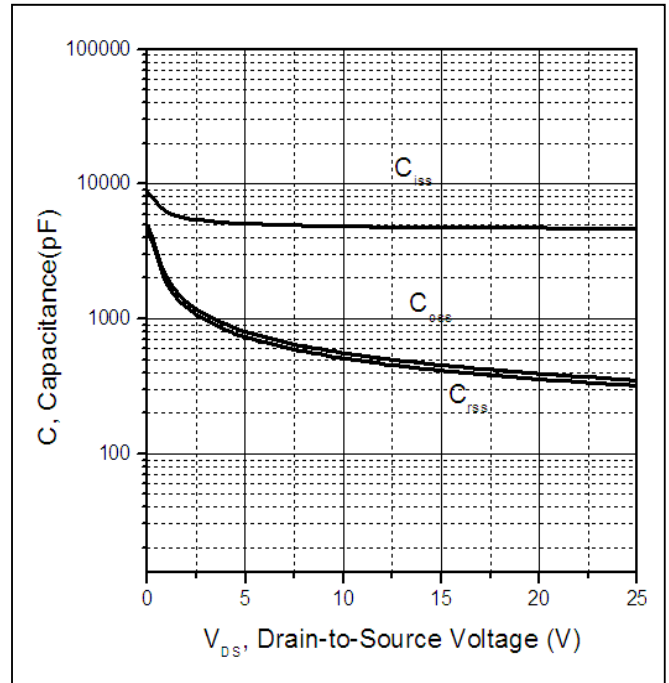


Figure 6. Typical Capacitance Vs. Drain-to-Source Voltage

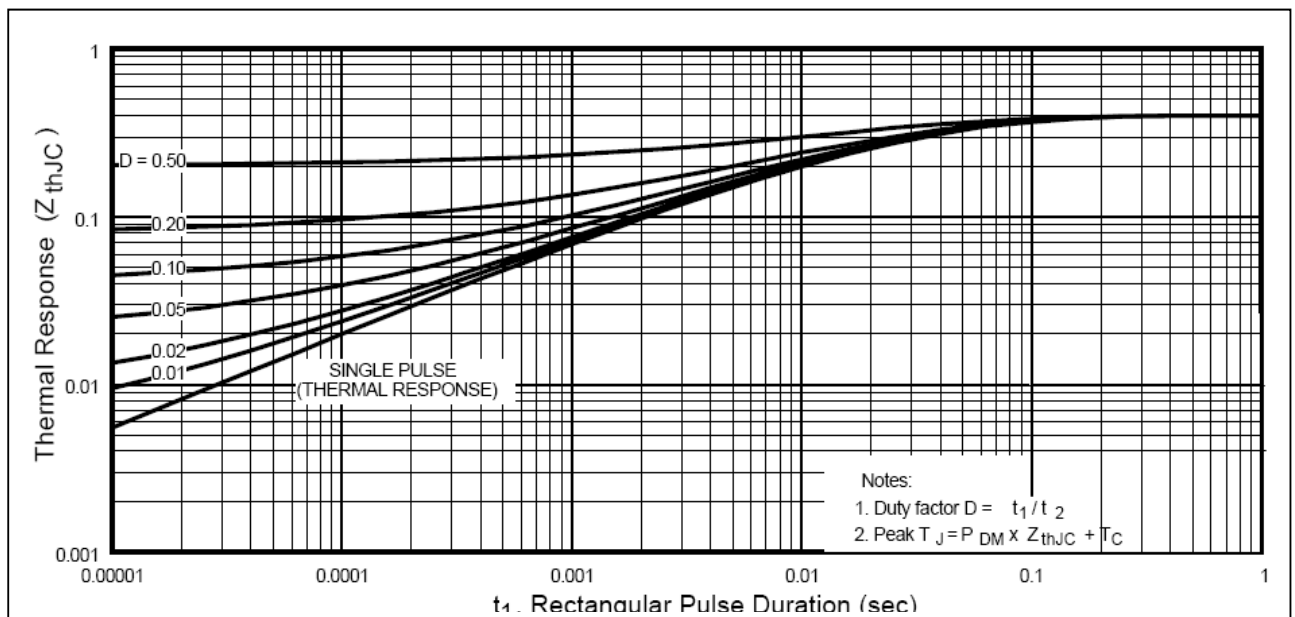


Figure 7. Maximum Effective Transient Thermal Impedance, Junction-to-Case

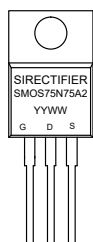
SMOS75N75A2

N Channel Power MOSFET

Marking

SMOS75N75A2

(TO-220AB)



Company Logo

Part Number

Lot No.

Ordering Information

Part Number	Package	Shipping	Marking Code
SMOS75N75A2	TO-220AB	50pcs / Tube or 800pcs / Tape & Reel or 1000pcs / Tape & Reel	SMOS75N75A2