Samwin®

SW035R08ET

N-channel Enhanced mode TO-263 MOSFET

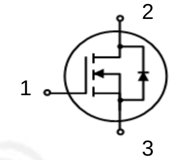
Features

- High ruggedness
- Low $R_{DS(ON)}$ (Typ 3.3mΩ)@V_{GS}=10V
- Low Gate Charge (Typ 185nC)
- Improved dv/dt Capability
- 100% Avalanche Tested
- Application:Synchronous Rectification, Inverter, Li Battery Protect Board

TO-263

1. Gate 2. Drain 3. Source

BV_{DSS} : 80V
I_D : 120A
$R_{DS(ON)}$: 3.3mΩ



General Description

This power MOSFET is produced with advanced technology of SAMWIN.
This technology enable the power MOSFET to have better characteristics, including fast switching time, low on resistance, low gate charge and especially excellent avalanche characteristics.

Order Codes

Item	Sales Type	Marking	Package	Packaging
1	SW B 035R08ET	SW035R08ET	TO-263	TUBE

Absolute maximum ratings

Symbol	Parameter		Value	Unit
V_{DSS}	Drain to source voltage		80	V
I_D	Continuous drain current (@T_C=25°C)		120*	A
	Continuous drain current (@T_C=100°C)		100*	A
I_{DM}	Drain current pulsed	(note 1)	480	A
V_{GS}	Gate to source voltage		±20	V
E_{AS}	Single pulsed avalanche energy	(note 2)	2349	mJ
E_{AR}	Repetitive avalanche energy	(note 1)	58	mJ
dv/dt	Peak diode recovery dv/dt	(note 3)	5	V/ns
P_D	Total power dissipation (@T_C=25°C)		196	W
	Derating factor above 25°C		1.6	W/°C
T_{STG}, T_J	Operating junction temperature & storage temperature		-55 ~ + 150	°C
T_L	Maximum lead temperature for soldering purpose, 1/8 from case for 5 seconds.		300	°C

*. Drain current is limited by junction temperature.

Thermal characteristics

Symbol	Parameter	Value	Unit
R_{thjc}	Thermal resistance, Junction to case	0.64	°C/W

Electrical characteristic (T_C = 25°C unless otherwise specified)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
Off characteristics						
BV_{DSS}	Drain to source breakdown voltage	V_{GS}=0V, I_D=250uA	80			V
ΔBV_{DSS} / ΔT_J	Breakdown voltage temperature coefficient	I_D=250uA, referenced to 25°C		0.03		V/°C
I_{DSS}	Drain to source leakage current	V_{DS}=80V, V_{GS}=0V			1	uA
		V_{DS}=64V, T_C=125°C			50	uA
I_{GSS}	Gate to source leakage current, forward	V_{GS}=20V, V_{DS}=0V			100	nA
	Gate to source leakage current, reverse	V_{GS}=-20V, V_{DS}=0V			-100	nA
On characteristics						
$V_{GS(TH)}$	Gate threshold voltage	V_{DS}=V_{GS}, I_D=250uA	2		4	V
$R_{DS(ON)}$	Drain to source on state resistance	V_{GS}=10V, I_D=60A		3.3	4.1	mΩ
		V_{GS}=10V, I_D=120A		3.4	4.3	mΩ
G_{fs}	Forward transconductance	V_{DS}=8V, I_D=60A		170		S
Dynamic characteristics						
C_{iss}	Input capacitance	V_{GS}=0V, V_{DS}=40V, f=1MHz		8130		pF
C_{oss}	Output capacitance			885		
C_{rss}	Reverse transfer capacitance			732		
$t_{d(on)}$	Turn on delay time	V_{DS}=40V, I_D=30A, R_G=25Ω, V_{GS}=10V (note 4,5)		84		ns
t_r	Rising time			218		
$t_{d(off)}$	Turn off delay time			388		
t_f	Fall time			253		
Q_g	Total gate charge	V_{DS}=64V, V_{GS}=10V, I_D=30A (note 4,5)		185		nC
Q_{gs}	Gate-source charge			24		
Q_{gd}	Gate-drain charge			87		
R_g	Gate resistance	V_{DS}=0V, Scan F mode		1.5		Ω

Source to drain diode ratings characteristics

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_S	Continuous source current	Integral reverse p-n Junction diode in the MOSFET			120	A
I_{SM}	Pulsed source current				480	A
V_{SD}	Diode forward voltage drop.	I_S=60A, V_{GS}=0V			1.4	V
t_{rr}	Reverse recovery time	I_S=30A, V_{GS}=0V, dI_F/dt=100A/us		50		ns
Q_{rr}	Reverse recovery charge			70		nC

※. Notes
1. Repeatitive rating : pulse width limited by junction temperature.
2. L =5.2mH, I_{AS} =30A, V_{DD}=50V, R_G=25Ω, Starting T_J = 25°C
3. I_{SD} ≤ 30A, di/dt = 100A/us, V_{DD} ≤ BV_{DSS}, Staring T_J =25°C
4. Pulse Test : Pulse Width ≤ 300us, duty cycle ≤ 2%.
5. Essentially independent of operating temperature.

Fig. 1. On-state characteristics

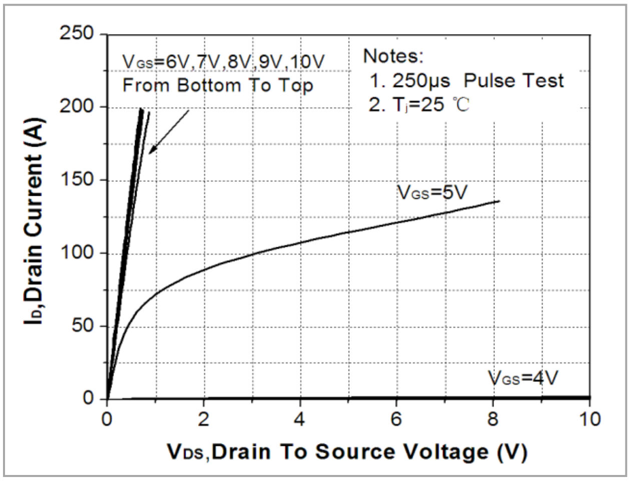


Fig. 2. On-resistance variation vs. drain current and gate voltage

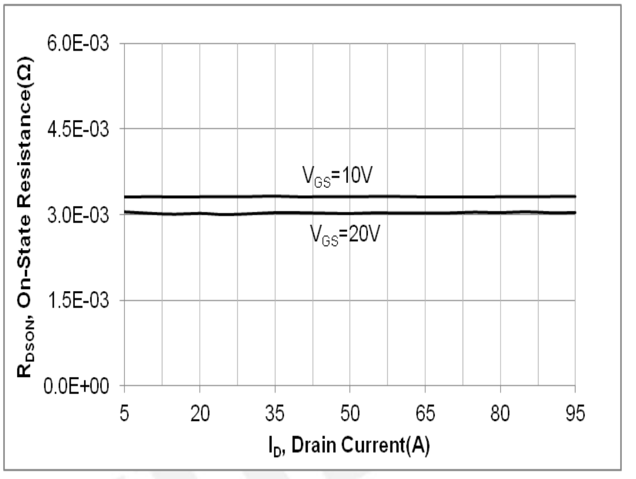


Fig. 3. Gate charge characteristics

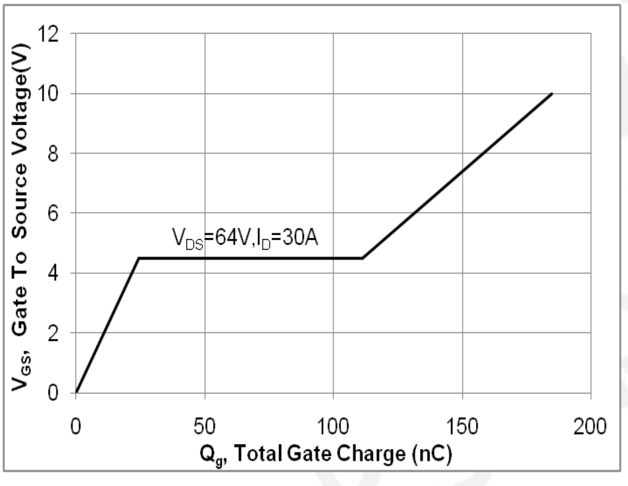


Fig. 4. On-state current vs. diode forward voltage

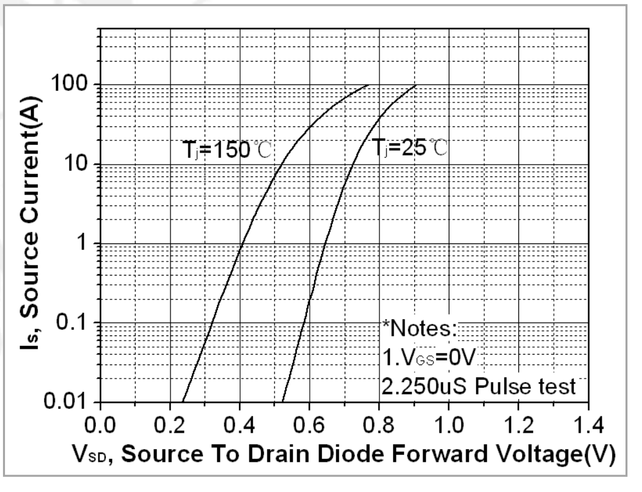


Fig 5. Breakdown voltage variation vs. junction temperature

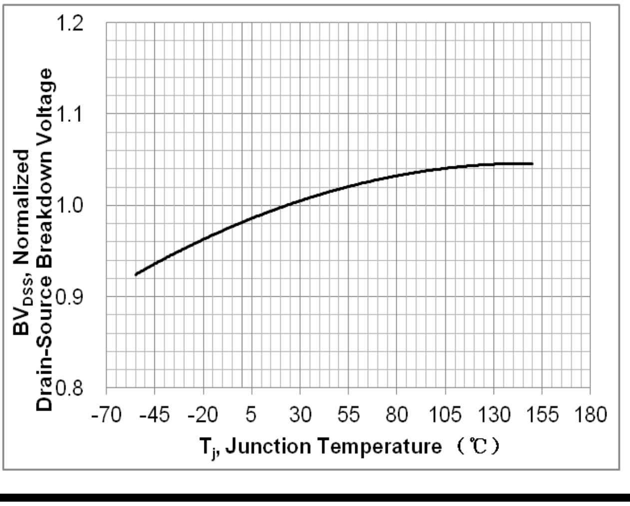


Fig. 6. On-resistance variation vs. junction temperature

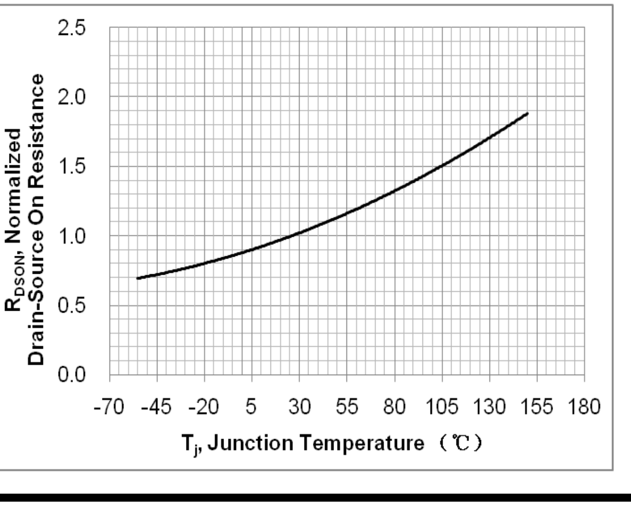


Fig. 7. Maximum safe operating area

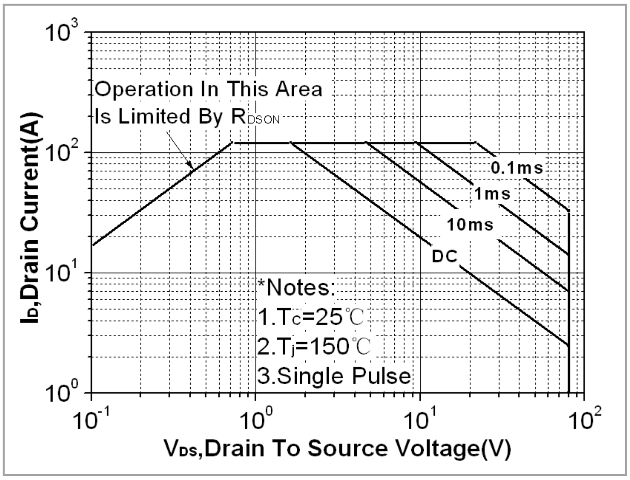


Fig. 8. Capacitance Characteristics

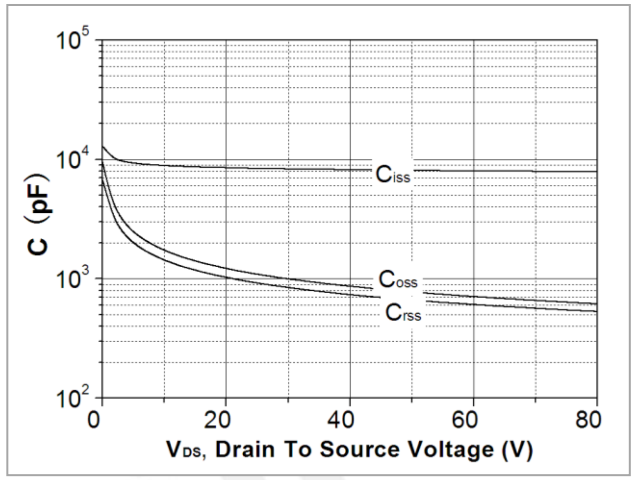


Fig. 9. Transient thermal response curve

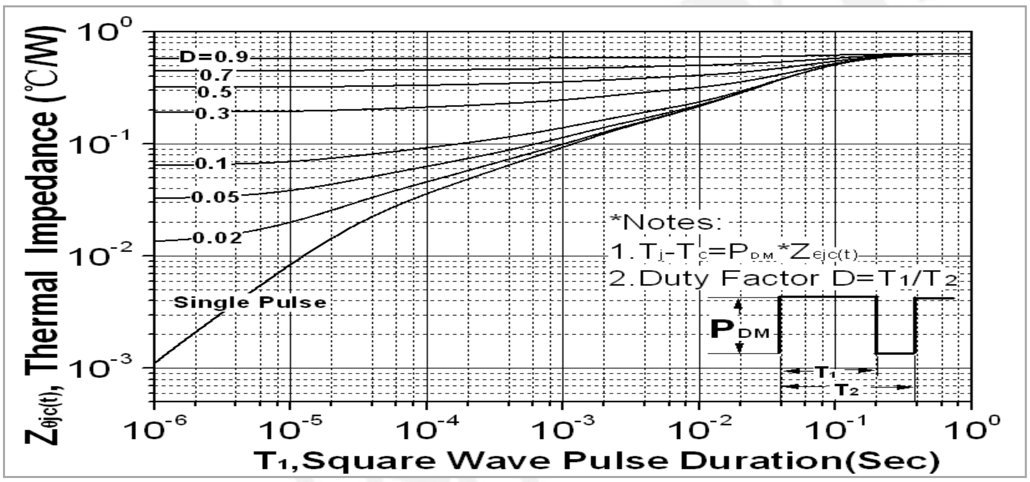


Fig. 10. Gate charge test circuit & waveform

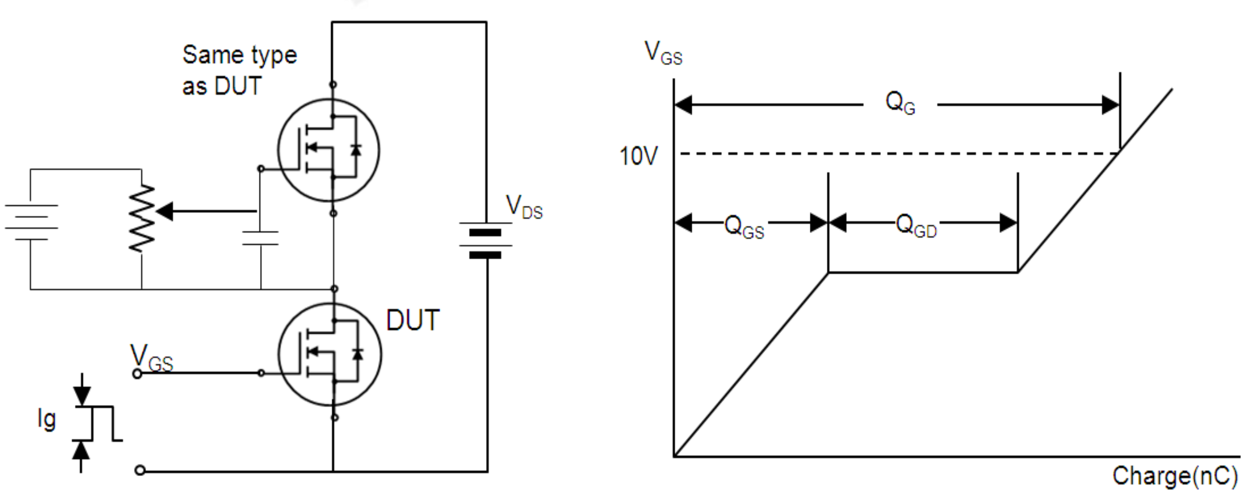


Fig. 11. Switching time test circuit & waveform

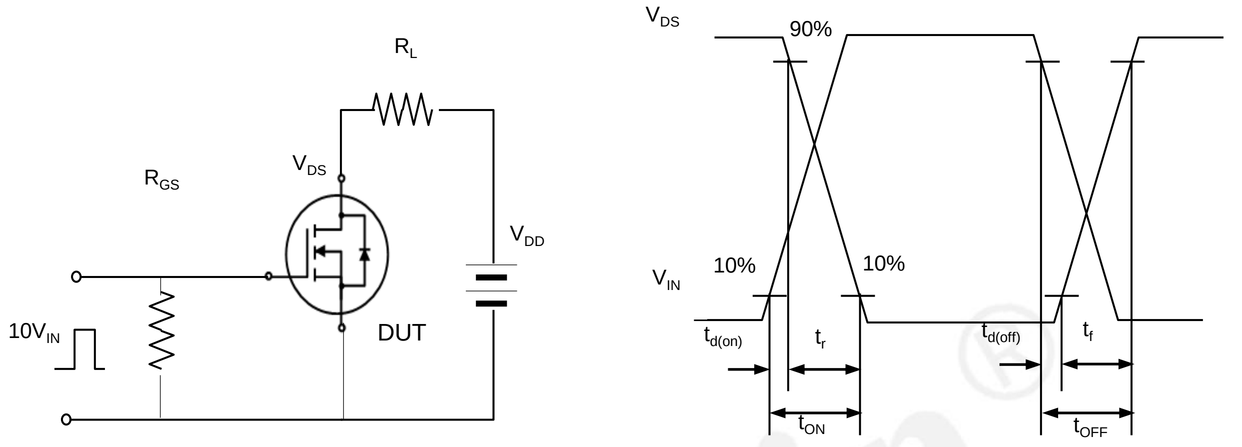


Fig. 12. Unclamped Inductive switching test circuit & waveform

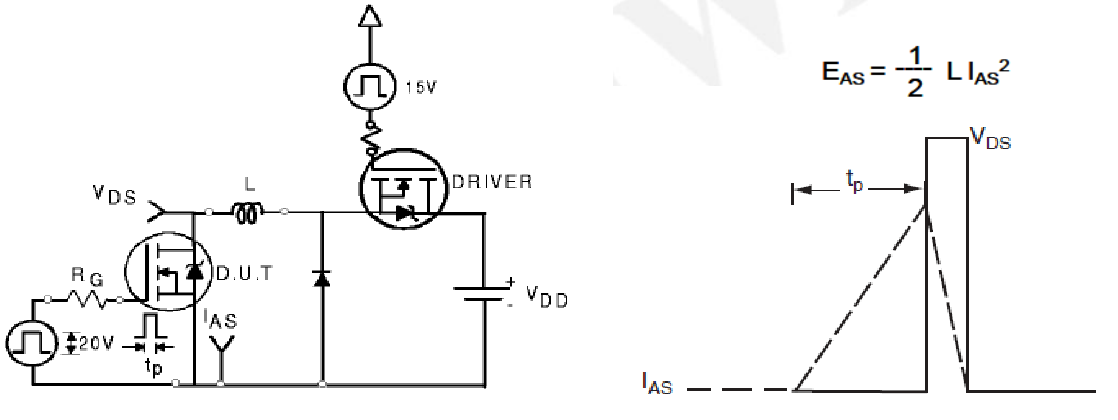
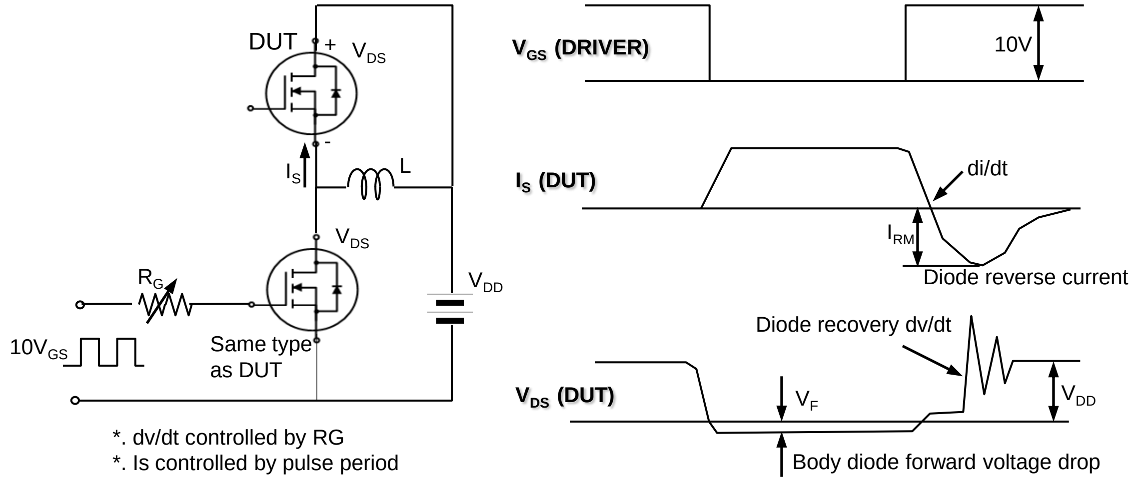


Fig. 13. Peak diode recovery dv/dt test circuit & waveform



DISCLAIMER

* All the data & curve in this document was tested in XI'AN SEMIPOWER TESTING & APPLICATION CENTER.
* This product has passed the PCT,TC,HTRB,HTGB,HAST,PC and Solderdunk reliability testing.
* Qualification standards can also be found on the Web site (**http://www.semipower.com.cn**)
* Suggestions for improvement are appreciated, Please send your suggestions to **samwin@samwinsemi.com**

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for MOSFET ***category:***

Click to view products by Sam&wing ***manufacturer:***

Other Similar products are found below :

614233C 648584F MCH3443-TL-E MCH6422-TL-E FDPF9N50NZ FW216A-TL-2W FW231A-TL-E APT5010JVR NTNS3A92PZT5G IRF100S201 JANTX2N5237 2SK2464-TL-E 2SK3818-DL-E FCA20N60_F109 FDZ595PZ STD6600NT4G FSS804-TL-E 2SJ277-DL-E 2SK1691-DL-E 2SK2545(Q,T) D2294UK 405094E 423220D MCH6646-TL-E TPCC8103,L1Q(CM 367-8430-0972-503 VN1206L 424134F 026935X 051075F SBVS138LT1G 614234A 715780A NTNS3166NZT5G 751625C 873612G IRF7380TRHR IPS70R2K0CEAKMA1 RJK60S3DPP-E0#T2 RJK60S5DPK-M0#T0 APT5010JVFR APT12031JFLL APT12040JVR DMN3404LQ-7 NTE6400 JANTX2N6796U JANTX2N6784U JANTXV2N5416U4 SQM110N05-06L-GE3 SIHF35N60E-GE3