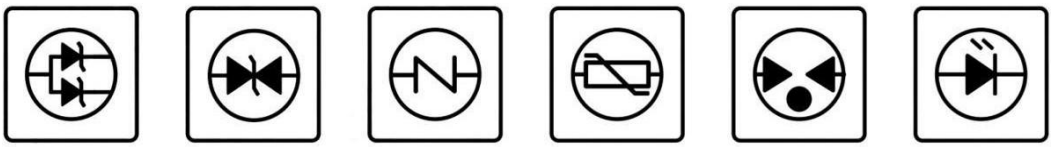
MSKSEMI 美森科
SEMICONDUCTOR



BSS84-MS

Product specification

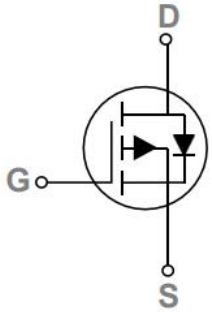
General Features

- *-55 V,-0.3A, RDS(ON) =4.0Ω@VGS = - 10V*
- *Improved dv/dt capability*
- *Fast switching*
- *Green Device Available*
- *ESD protected up to 2KV*

Application

- Notebook
- Load Switch
- Battery Protection

Reference News

PACKAGE OUTLINE	Pin Configuration	Marking
 SOT-363		B84

Absolute Maximum Ratings (TA=25℃ unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-55	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Drain Current – Continuous (T_A=25°C)	-0.3	A
	Drain Current – Continuous (T_A=70°C)	-0.2	A
I_{DM}	Drain Current – Pulsed[1]	-1.2	A
P_D	Power Dissipation (T_A=25°C)	1.0	W
	Power Dissipation – Derate above 25°C	12.5	mW/°C
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
RθJA	Thermal Resistance Junction to ambient	---	80	℃/W

Electrical Characteristics (TJ=25℃ , unless otherwise noted)

Off Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=-250uA	-55	---	---	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-55V , V_{GS}=0V , T_J=25°C	---	---	-1	uA
		V_{DS}=-48V , V_{GS}=0V , T_J=125°C	---	---	-10	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}= ±20V , V_{DS}=0V	---	---	±20	uA

On Characteristics

$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=-10V , I_D=-0.3A	---	4.0	5	Ω
		V_{GS}=-4.5V , I_D=-0.2A	---	3.5	6.0	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =-250uA	-1.0	-1.7	-2.5	V
gfs	Forward Transconductance	V_{DS}=-10V , I_D=-0.3A	---	0.4	---	S

Dynamic and switching Characteristics

Q_g	Total Gate Charge[2,3]	V_{DS}=-30V , V_{GS}=-10V , I_D=-0.3A	---	2.8	---	nC
Q_{gs}	Gate-Source Charge[2,3]		---	0.96	---	
Q_{gd}	Gate-Drain Charge[2,3]		---	0.6	---	
$T_{d(on)}$	Turn-On Delay Time[2,3]	V_{DD}=-30V , V_{GS}=-10V , R_G=6Ω I_D=-0.3A	---	3	---	ns
T_r	Rise Time[2,3]		---	5	---	
$T_{d(off)}$	Turn-Off Delay Time[2,3]		---	14	---	
T_f	Fall Time[2,3]		---	9	---	
C_{iss}	Input Capacitance	V_{DS}=-30V , V_{GS}=0V , F=1MHz	---	30.5	---	pF
C_{oss}	Output Capacitance		---	15.1	---	
C_{rss}	Reverse Transfer Capacitance		---	7	---	

Drain-Source Diode Characteristics and Maximum Ratings

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	-0.3	A
I_{SM}	Pulsed Source Current		---	---	-0.6	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=-0.2A , T_J=25°C	---	---	-1.2	V
T_{rr}	Reverse Recovery Time	VR=-50V, IS=-0.3A di/dt=100A/ps, TJ=25℃	---	13.5	---	nS
Q_{rr}	Reverse Recovery Charge		---	3	---	nC

Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
3. Essentially independent of operating temperature.

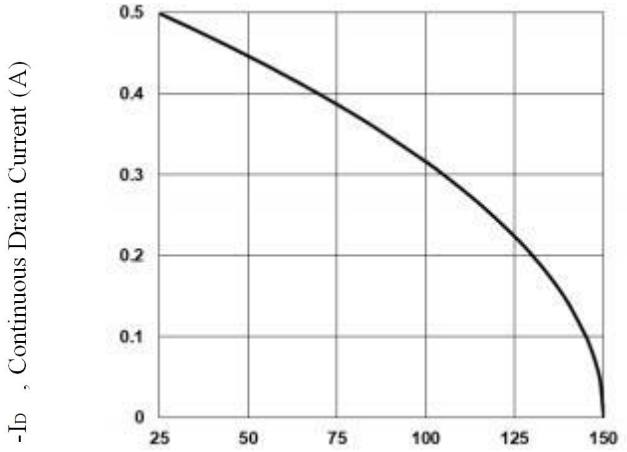


Fig.1 Continuous Drain Current vs. T_C

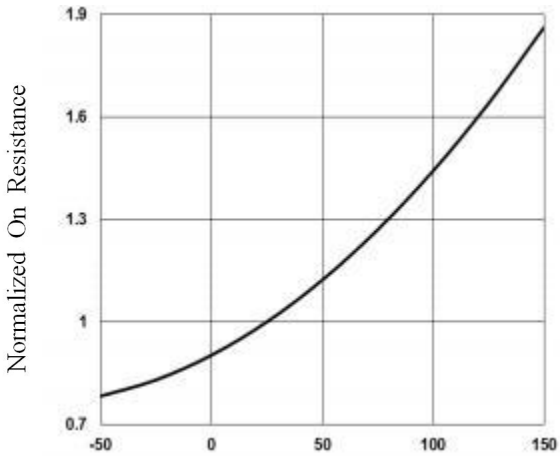


Fig.2 Normalized RDSON vs. T_J

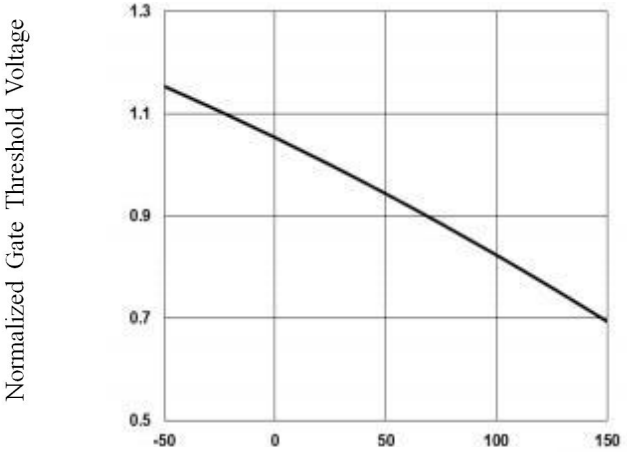


Fig.3 Normalized V_{th} vs. T_J

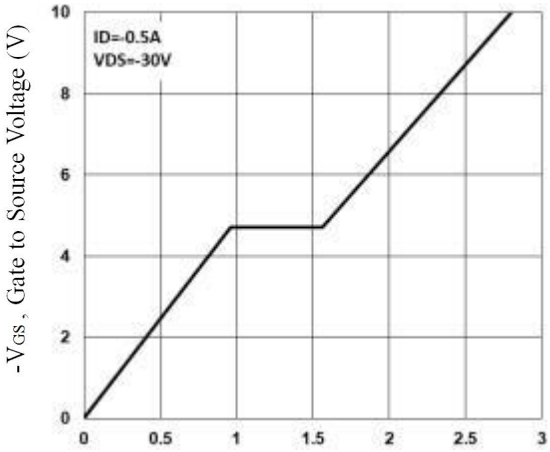


Fig.4 Gate Charge Waveform

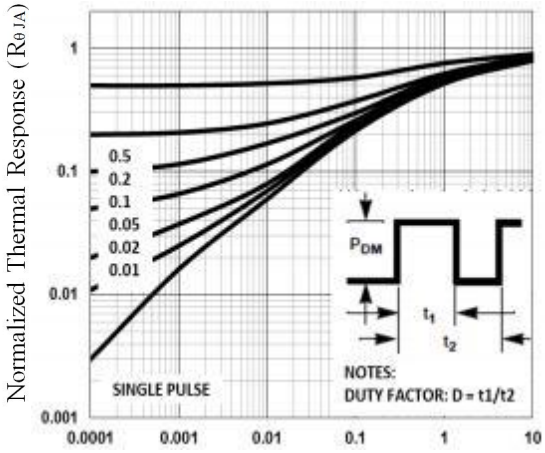


Fig.5 Normalized Transient Impedance

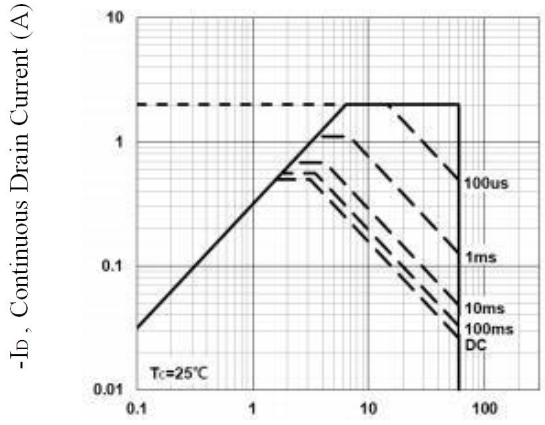


Fig.6 Maximum Safe Operation Area

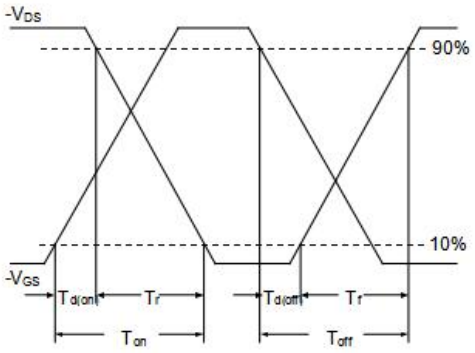


Fig. 7 Switching Time Waveform

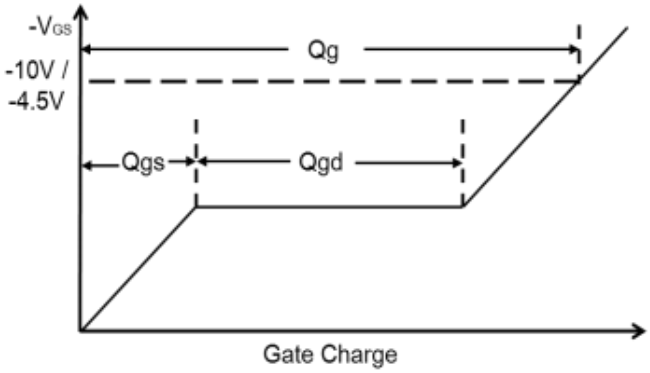
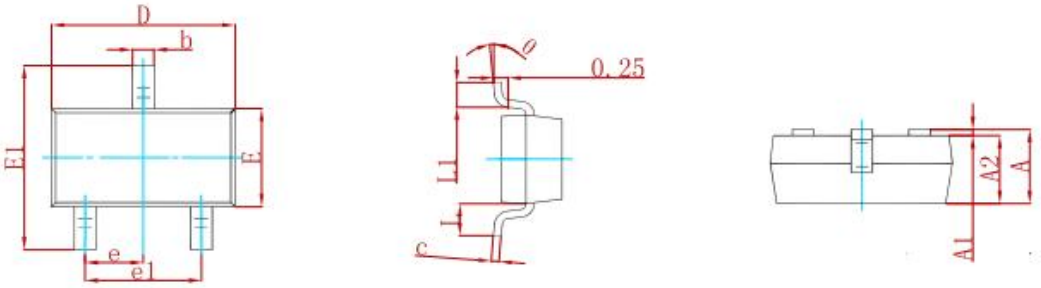


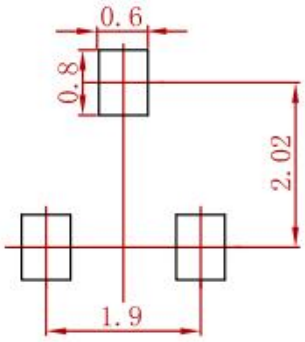
Fig. 8 Gate Charge Waveform

PACKAGE MECHANICAL DATA



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Suggested Pad Layout



Note:
1.Controlling dimension:In millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.

REEL SPECIFICATION

P/N	PKG	QTY
BSS84-MS	SOT-23	3000

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