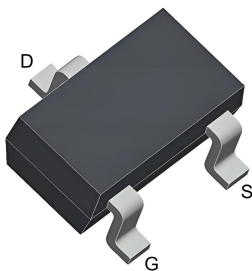


P-Channel 60V(D-S) MOSFET

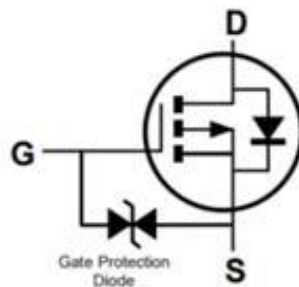
Product summary		
V_{DS}	-60	V
$R_{DS(ON)}$ (at $V_{GS}=-10V$) Typ.	3.5	Ω
$R_{DS(ON)}$ (at $V_{GS}=-4.5V$) Typ.	4.5	Ω
$I_D(T_A=25^\circ C)$	-0.22	A

Features
<ul style="list-style-type: none"> ● Advanced Trench Technology ● Low Gate Charge
Applications
<ul style="list-style-type: none"> ● Power management ● PWM Application ● Load Switch

Pin Configuration



SOT-23



Packing Information

Device	Package	Reel Size	Quantity(Min. Package)
BSS84K	SOT-23	7"	3000pcs

Absolute Maximum Ratings (at $T_A=25^\circ C$ Unless Otherwise Noted)

Symbol	Parameter	Rating	Units	
V_{DS}	Drain-Source Voltage	-60	V	
V_{GS}	Gate-Source Voltage	± 20	V	
I_D	Continuous Drain Current at $V_{GS}=-10V$	$T_A=25^\circ C$	-0.22	A
		$T_A=100^\circ C$	-0.14	A
I_{DM}	Pulse Drain Current Tested ^A	-0.88	A	
P_D	Power Dissipation	$T_A=25^\circ C$	0.35	W
T_J, T_{STG}	Junction and Storage Temperature Range	-55 to +150	$^\circ C$	

Thermal Characteristics

Symbol	Parameter	Typical	Units
$R_{\theta JA}$	Thermal Resistance-Junction to ambient ^B	357	$^\circ C/W$

Electrical Characteristics (at $T_J = 25^\circ\text{C}$ Unless Otherwise Noted)

Symbol	Parameter	Condition	Min.	Typ.	Max.	Units
Static Parameters						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-60	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-60V, V_{GS}=0V$	--	--	-1	μA
I_{GSS}	Gate-Body Leakage Current	$V_{DS}=0V, V_{GS}=\pm 20V$	--	--	± 10	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.1	-1.5	-2.2	V
$R_{DS(on)}$	Drain-Source On-State Resistance ^C	$V_{GS}=-10V, I_D=-0.2A$	--	3.5	5	Ω
		$V_{GS}=-4.5V, I_D=-0.1A$	--	4.5	7	Ω
V_{SD}	Forward Voltage	$I_{SD}=-0.1A, V_{GS}=0V$	--	--	-1.2	V
Dynamic Parameters ^D						
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=-25V$ $f=1\text{MHz}$	--	23	--	pF
C_{oss}	Output Capacitance		--	3.6	--	pF
C_{riss}	Reverse Transfer Capacitance		--	2	--	pF
Q_g	Total Gate Charge	$V_{DS}=-30V, I_D=-0.1A$ $V_{GS}=0$ to $-10V$	--	0.85	--	nC
Q_{gs}	Gate-Source Charge		--	0.12	--	nC
Q_{gd}	Gate-Drain Charge		--	0.1	--	nC
$t_{D(on)}$	Turn-on Delay Time	$V_{DD}=-30V$ $I_D=-0.1A, V_{GS}=-10V,$ $R_{GEN}=3\Omega$	--	18.5	--	nS
t_r	Turn-on Rise Time		--	15	--	nS
$t_{D(off)}$	Turn-off Delay Time		--	105	--	nS
t_f	Turn-off Fall Time		--	38	--	nS

A. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.

B. Device mounted on FR-4 PCB, 1 inch x 1 inch x 0.062 inch.

C. Pulse Test: Pulse Width $\leq 300\mu s$, Duty cycle $\leq 0.5\%$.

D. Guaranteed by design, not subject to production testing.

Test Circuit

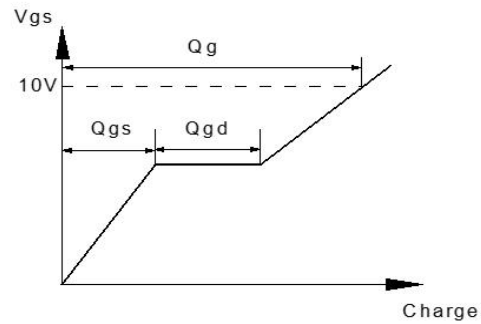
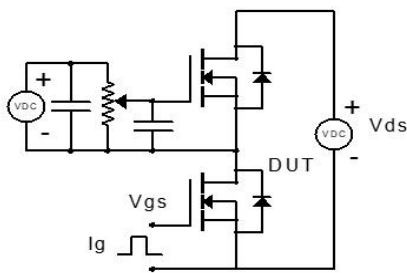


Figure 1: Gate Charge Test Circuit & Waveform

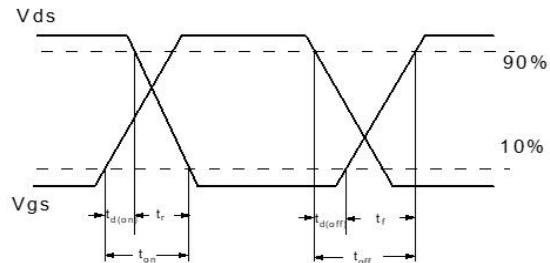
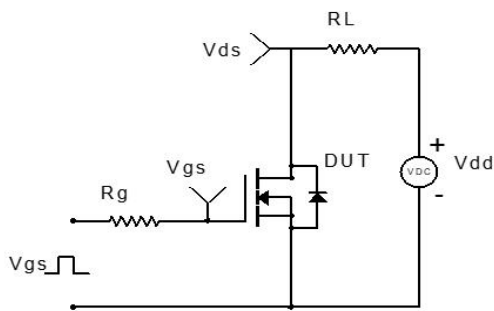


Figure 2: Resistive Switching Test Circuit & Waveform

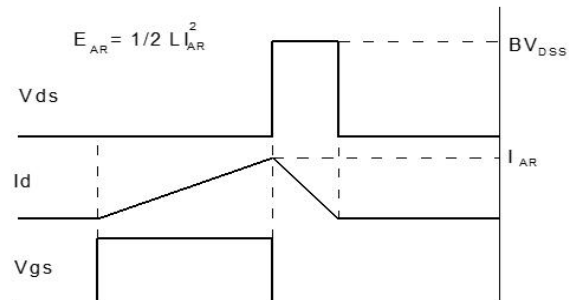
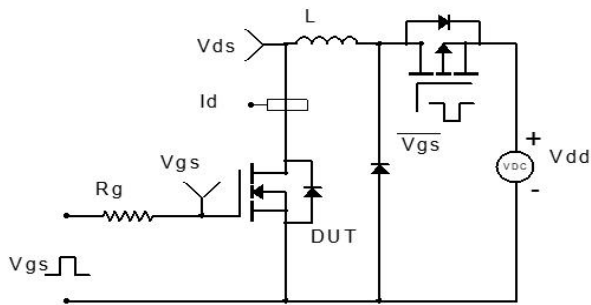


Figure 3: Unclamped Inductive Switching Test Circuit & Waveform

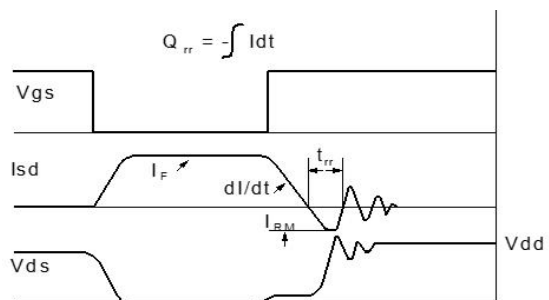
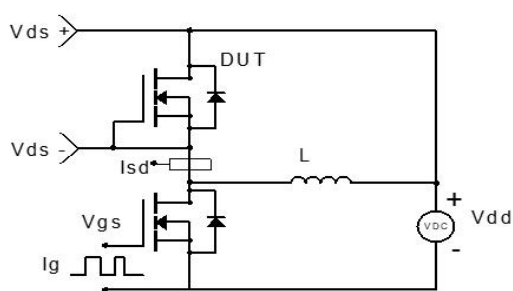
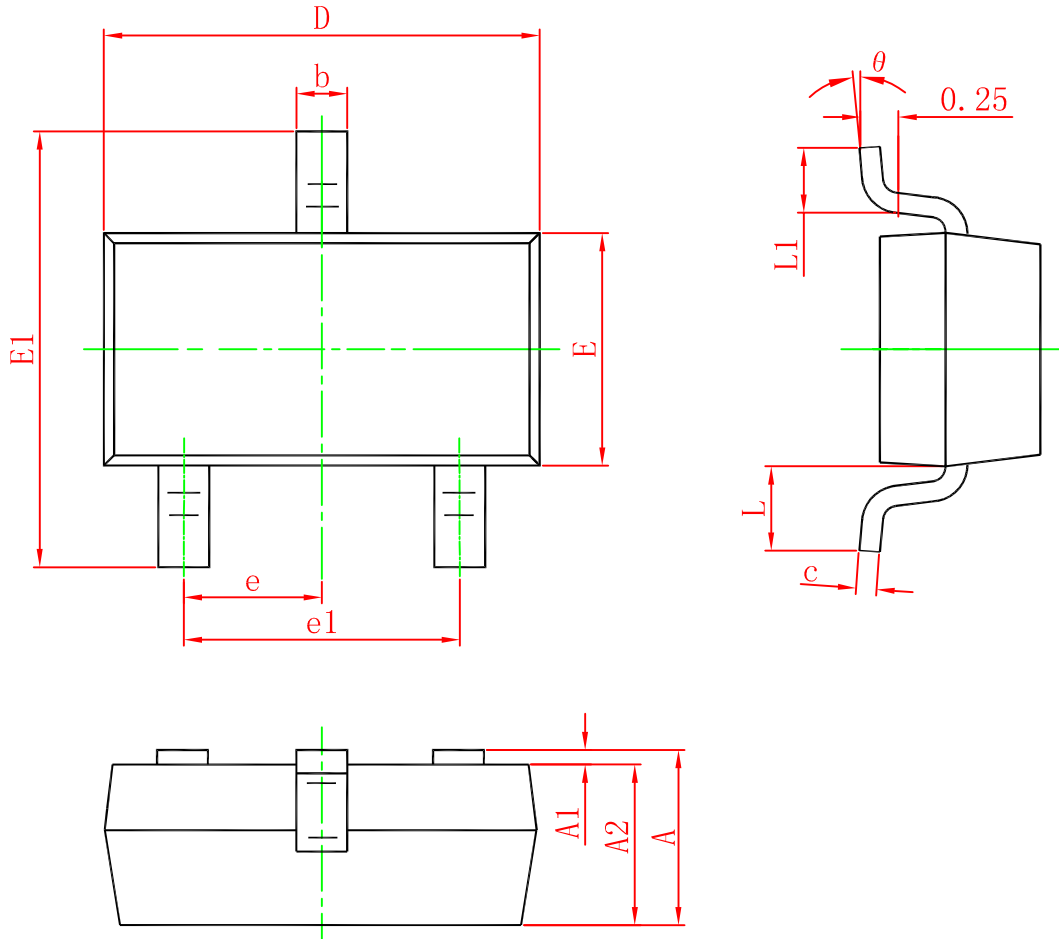


Figure 4: Diode Recovery Test Circuit & Waveform

SOT-23 Package Information



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°