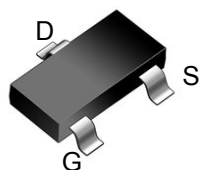
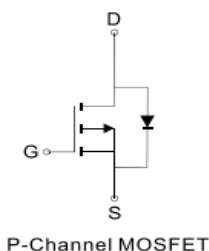


SOT-23



MARKING: B84



Features

Advanced trench process technology
High density cell design for Ultra Low On-Resistance
Halogen free and RoHS compliant

Mechanical Data

SOT-23 Small Outline Plastic Package
EpoxyUL:94V-0

Summary of Packing Options

Package	Packing Description	Packing Quantity	Industry Standard
SOT-23	Tape/Reel, 7" reel	3000	EIA-481-1

Maximum Ratings & Thermal Characteristics

(Ratings at 25°C ambient temperature unless otherwise specified.)

Symbol	Parameter	Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)			
V_{DS}	Drain-Source Breakdown Voltage	-50	V
V_{GS}	Gate-Source Voltage	±20	V
T_J	Maximum Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	-50 to 150	°C
I_S	Diode Continuous Forward Current	$T_C=25^{\circ}\text{C}$ -0.13	A
Mounted on Large Heat Sink			
I_{DM}	Pulse Drain Current Tested	$T_C=25^{\circ}\text{C}$ -0.52	A
I_D	Continuous Drain Current	$T_C=25^{\circ}\text{C}$ -0.13	A
P_D	Maximum Power Dissipation	$T_C=25^{\circ}\text{C}$ 0.225	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient	556	°C/W

Electrical Characteristics

(Ratings at 25°C ambient temperature unless otherwise specified.)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ $T_J = 25^{\circ}\text{C}$ (unless otherwise stated)						
$BV_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-50	—	—	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=-50V, V_{GS}=0V$	—	—	-1	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	—	—	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0	-1.4	-2.0	V
$R_{DS(on)}$	Drain-Source On-State Resistance	$V_{GS}=-10V, I_D=-0.13A$	—	3.6	5.0	Ω
		$V_{GS}=-4.5V, I_D=-0.1A$	—	4.0	6.0	Ω

Electrical Characteristics

(Ratings at 25°C ambient temperature unless otherwise specified).

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =-30V, V _{GS} =0V, f=1MHz	--	43	--	pF
C _{OSS}	Output Capacitance		--	2.9	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	1.8	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DD} =-30V, I _D =-0.15A, V _{GS} =-4.5V	--	1.77	--	nC
Q _{gs}	Gate Source Charge		--	0.57	--	nC
Q _{gd}	Gate Drain Charge		--	0.18	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DD} =-30V, I _D =-0.15A, V _{GS} =-4.5V, R _G =2.5Ω	--	8.6	--	nS
t _r	Turn-on Rise Time		--	20	--	nS
t _{d(off)}	Turn-Off Delay Time		--	15	--	nS
t _f	Turn-Off Fall Time		--	77	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	T _J =25°C, I _S =-0.13A	--	--	-1.2	V

Ratings and Characteristic Curves

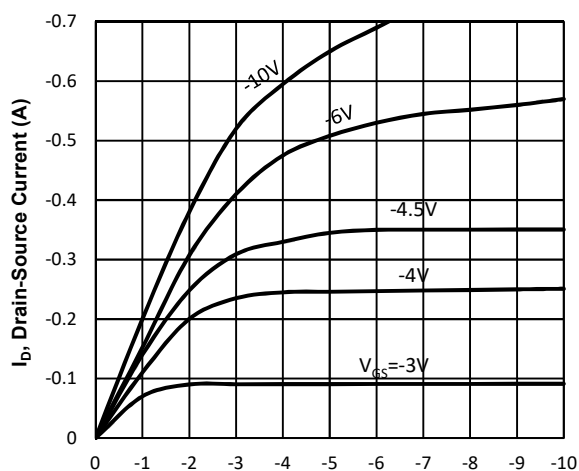


Fig1. Typical Output Characteristics

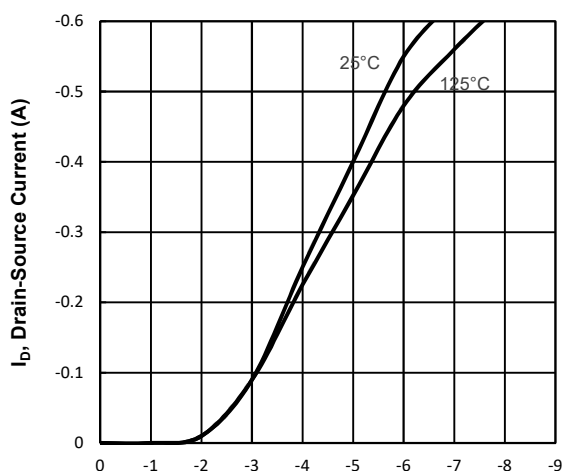


Fig2. Typical Transfer Characteristics

Ratings and Characteristic Curves

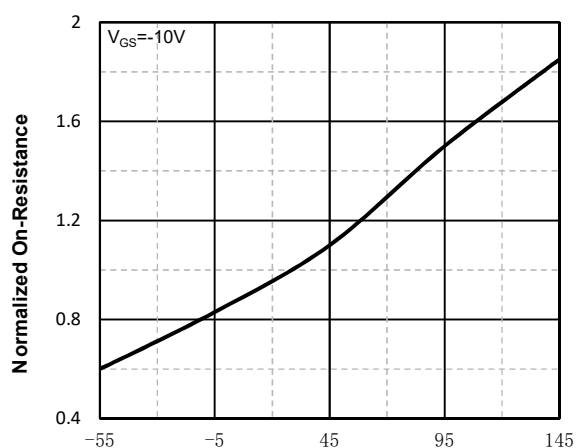


Fig3. Normalized On-Resistance Vs. Temperature

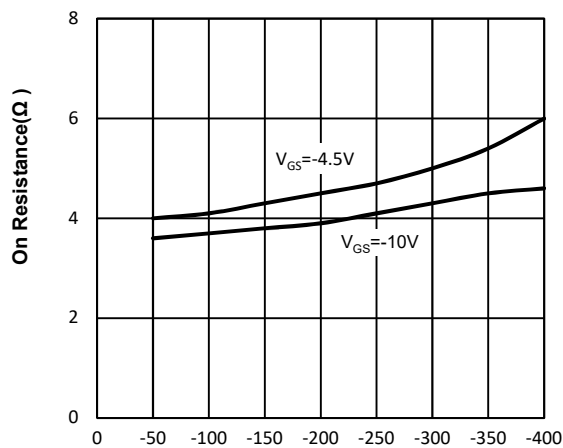


Fig4. On Resistance Vs. Drain-Source Current

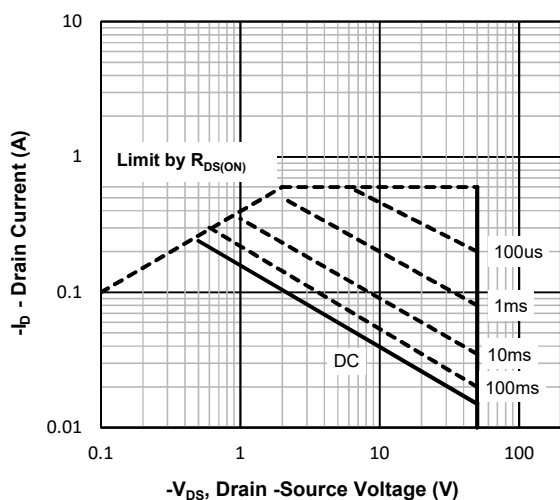


Fig5. Maximum Safe Operating Area

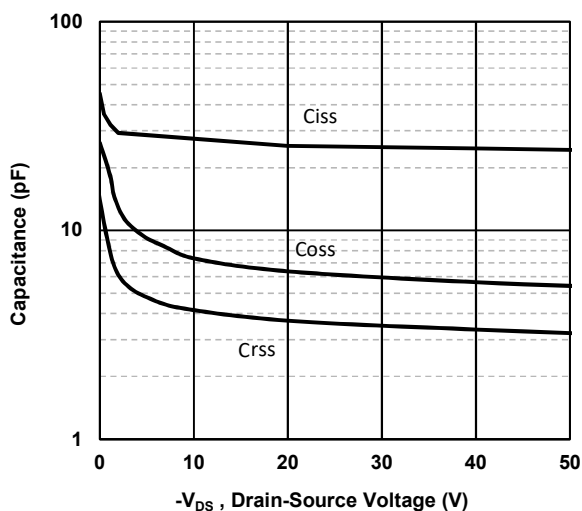
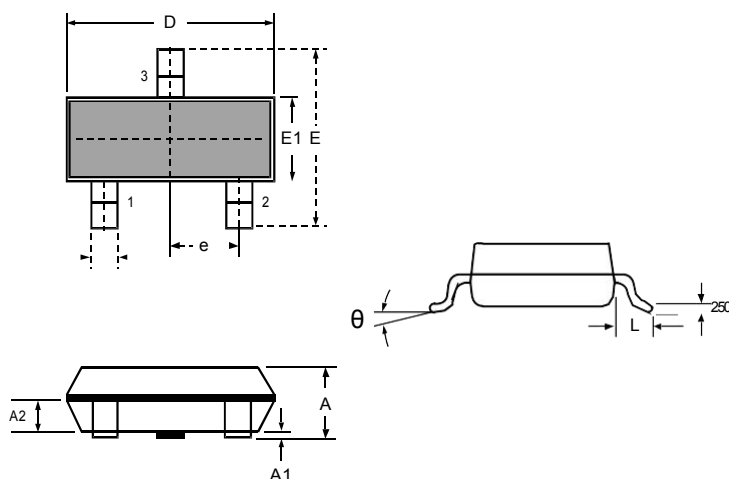


Fig6 Typical Capacitance Vs. Drain-Source Voltage

Package Outline Dimensions: SOT-23



DIMENSIONS

SYMBOL	MILLIMETER		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
D	2.800	3.000	0.110	0.118
b	0.300	0.500	0.012	0.020
E	2.250	2.550	0.089	0.100
E1	1.200	1.400	0.047	0.055
e	0.950 BSC		0.037 BSC	
L	0.300	0.500	0.012	0.020
θ	0	8°	0	8°