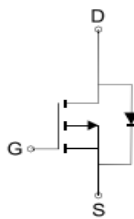
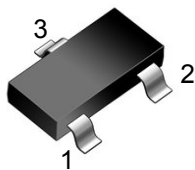




SOT-23



P-Channel MOSFET

Features

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

$V_{(BR)DSS}$	$R_{DS(ON)}$ Typ	I_D Max
-60V	150m Ω @ 10V	-2A
	200m Ω @ 4.5V	

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 (T _A =25°C Unless Otherwise Noted)				
V _{GS}	Gate-Source Voltage	±20	V	
V _{(BR)DSS}	Drain-Source Breakdown Voltage	-60	V	
T _J	Maximum Junction Temperature	150	°C	
T _{STG}	Storage Temperature Range	-50 to 150	°C	
Mounted on Large Heat Sink				
I _{DM}	Pulse Drain Current Tested①	T _A =25°C	-8	A
I _D	Continuous Drain Current	T _A =25°C	-2	A
		T _A =70°C	-1.6	
P _D	Maximum Power Dissipation	T _A =25°C	1	W
		T _A =70°C	0.8	
R _{θJA}	Thermal Resistance Junction-Ambient	125	°C/W	



Electrical Characteristics

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

Static Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V I _D =-250μA	-60	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current(T _A =25°C)	V _{DS} =-60V, V _{GS} =0V	--	--	-1	μA
	Zero Gate Voltage Drain Current(T _A =125°C)	V _{DS} =-60V, V _{GS} =0V	--	--	-100	uA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-1.0	-1.5	-2.5	V
R _{DS(ON)}	Drain-Source On-State Resistance②	V _{GS} =-10V, I _D =-2A	--	150	200	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance②	V _{GS} =-4.5V, I _D =-1A	--	200	300	mΩ
Dynamic Electrical Characteristics @ T _J = 25°C (unless otherwise stated)						
C _{iss}	Input Capacitance	V _{DS} =-30V, V _{GS} =0V, f=1MHz	--	310	--	pF
C _{oss}	Output Capacitance		--	22	--	pF
C _{rss}	Reverse Transfer Capacitance		--	15	--	pF
Q _g	Total Gate Charge	V _{DS} =-30V I _D =-2A, V _{GS} =-10V	--	5.4	--	nC
Q _{gs}	Gate Source Charge		--	1.1	--	nC
Q _{gd}	Gate Drain Charge		--	1.6	--	nC
Switching Characteristics						
t _{d(on)}	Turn on Delay Time	V _{DD} =-30V, I _D =-2A, R _G =3.3Ω, V _{GS} =-10V	--	41	--	ns
t _r	Turn on Rise Time		--	22	--	ns
t _{d(off)}	Turn Off Delay Time		-	25	--	ns
t _f	Turn Off Fall Time		--	32	--	ns
Source Drain Diode Characteristics						
I _{SD}	Source drain current(Body Diode)	T _A =25°C	--	--	-1.4	A
V _{SD}	Forward on voltage②	T _J =25°C, I _{SD} =-2A, V _{GS} =0V	--	-0.84	-1.2	V

Notes:

① Pulse width limited by maximum allowable junction temperature

Ratings and Characteristic Curves

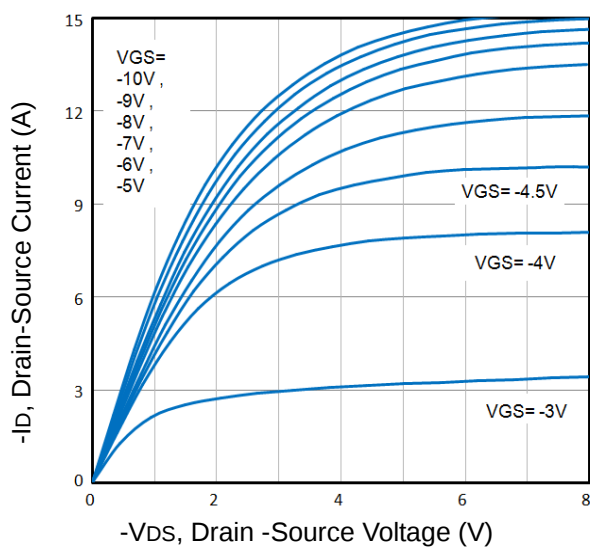


Fig1. Typical Output Characteristics

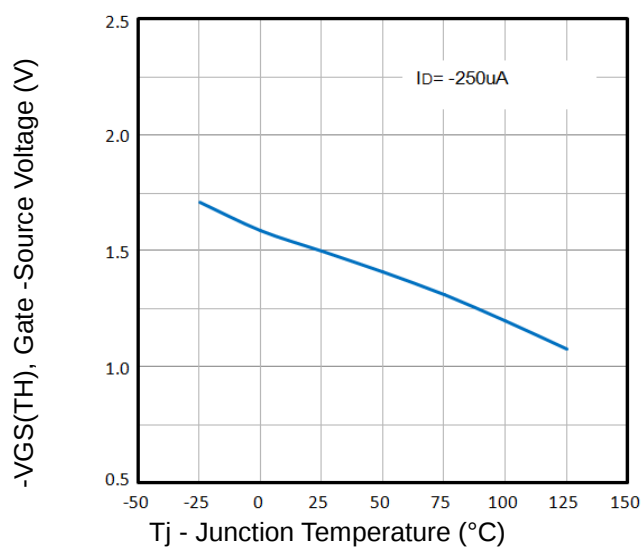


Fig2. Normalized Threshold Voltage Vs. Temperature

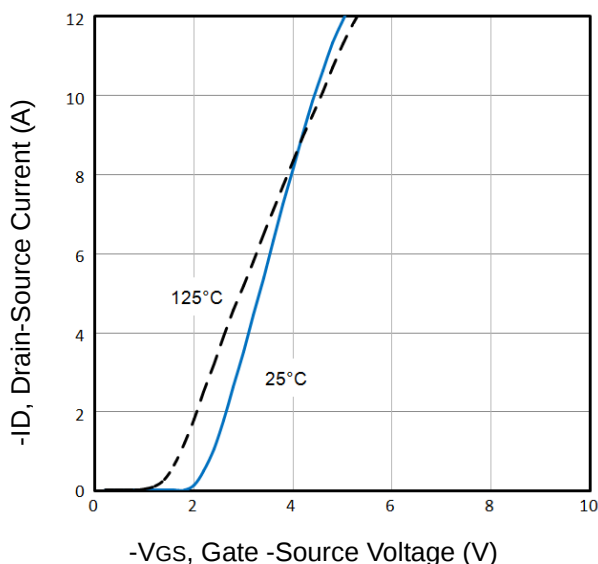


Fig3. Typical Transfer Characteristics

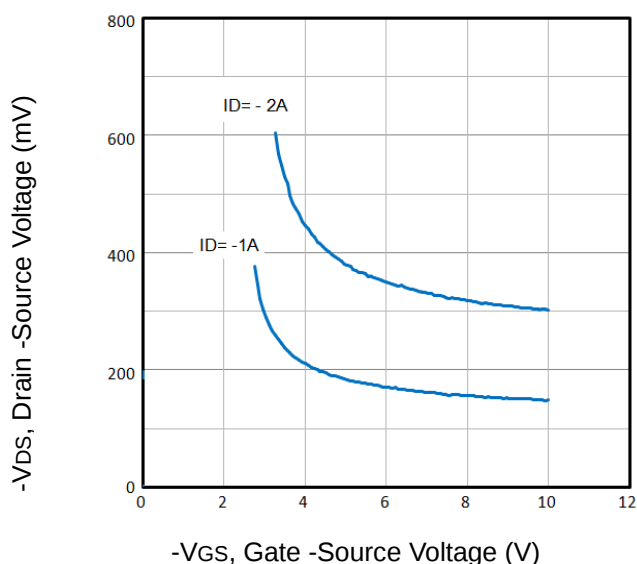


Fig4. Drain-Source Voltage vs Gate-Source Voltage

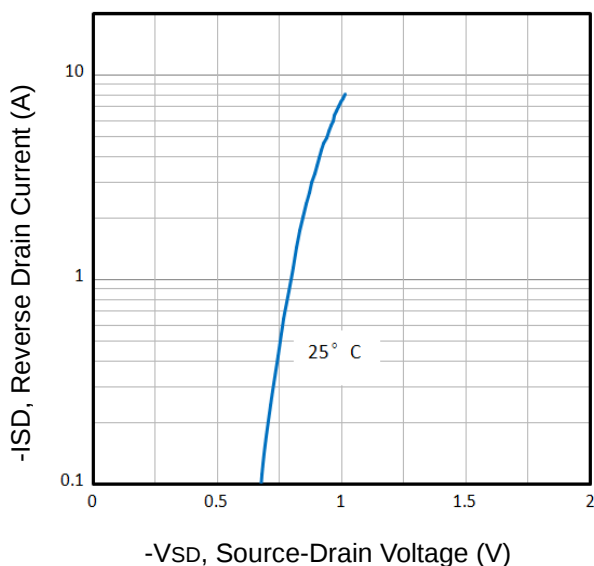


Fig5. Typical Source-Drain Diode Forward Voltage

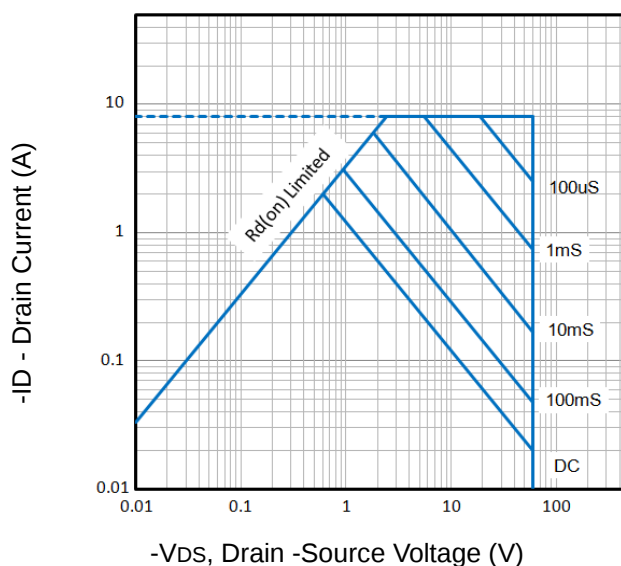


Fig6. Maximum Safe Operating Area



Ratings and Characteristic Curves

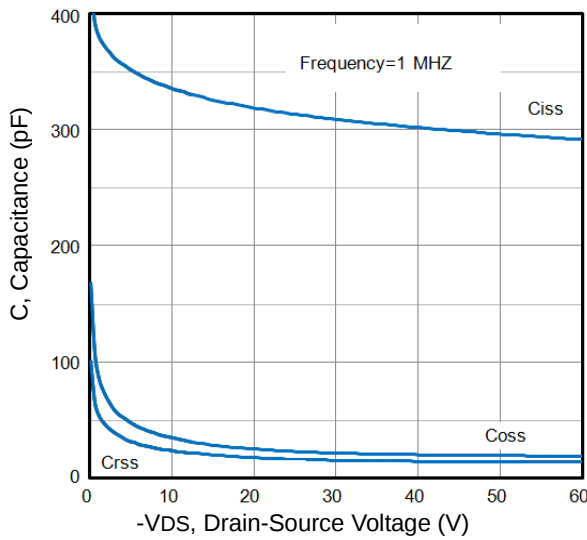


Fig7. Typical Capacitance Vs. Drain-Source Voltage

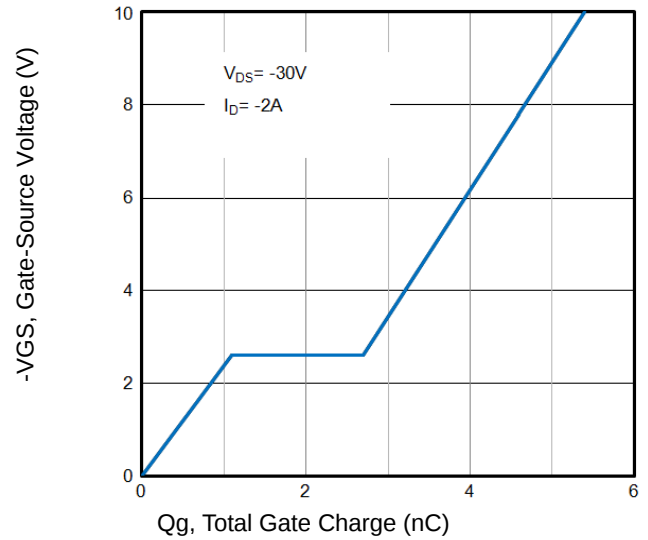


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

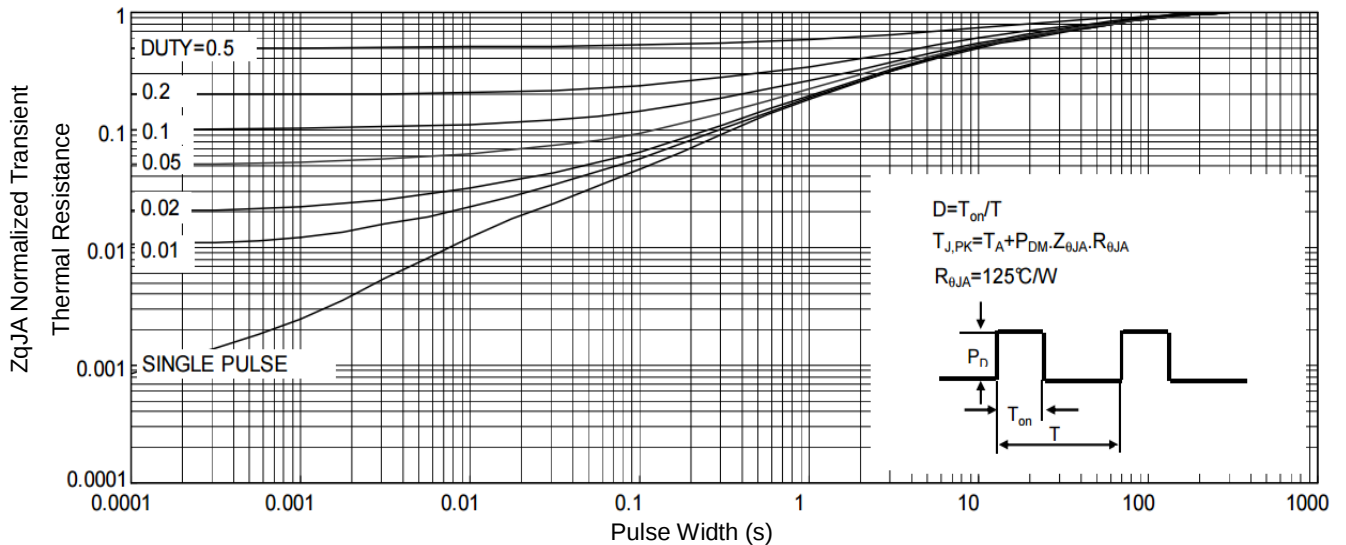
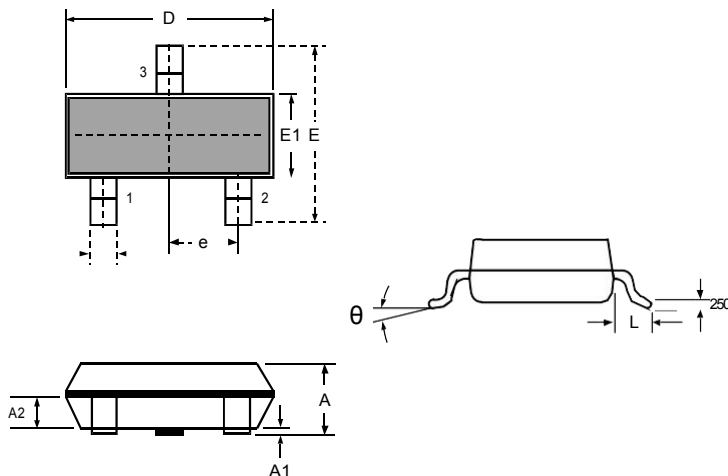


Fig9. Normalized Maximum Transient Thermal Impedance

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
theta	0	8°	0	8°