



60V P-Channel Trench Power MOSFET

General Description

The SJL60P470 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as -4.5V. This device is suitable for use as a wide variety of applications.

Features

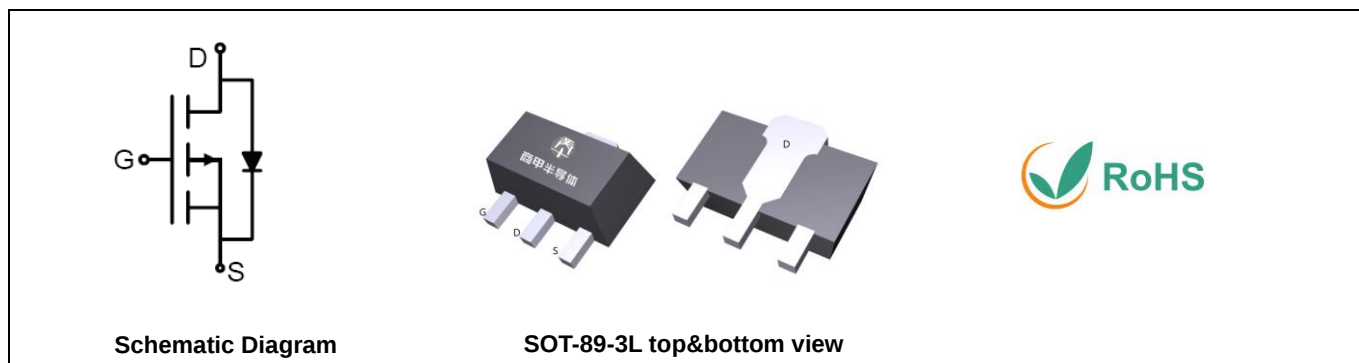
- Low Gate Charge
- 100% UIS Tested, 100% DVDS Tested
- High Power and current handling capability
- Lead free product is acquired

Application

- Load switch
- DC/DC converter for LCD display

Key Performance Parameters

Parameter	Value	Unit
V_{DS}	-60	V
$R_{DS(ON_TYP)}$	46	m Ω
I_D	-6.8	A
Q_G	40	nC



Package Marking and Ordering Information

Device/Ordering Code	Marking	Package	Packing	Reel Size	Tape width	Quantity
SJL60P470	SJL60P470	SOT-89-3L	Tape	\	\	5000 Pcs

Table 1. Absolute Maximum Ratings ($T_C=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Limit	Unit
V_{DS}	Drain-Source Voltage ($V_{GS}=0\text{V}$)	-60	V
V_{GS}	Gate-Source Voltage ($V_{DS}=0\text{V}$)	± 20	V
I_D	Drain Current-Continuous($T_A=25^{\circ}\text{C}$)	-6.8	A
	Drain Current-Continuous($T_A=100^{\circ}\text{C}$)	-4.3	A
I_{DM} (pluse)	Drain Current-Continuous@ Current-Pulsed (Note 1)	-27.2	A
P_D	Maximum Power Dissipation($T_A=25^{\circ}\text{C}$)	4.6	W
	Maximum Power Dissipation($T_A=100^{\circ}\text{C}$)	1.9	W
E_{AS}	Avalanche energy (Note 2)	56	mJ
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55 To 150	$^{\circ}\text{C}$

Table 2. Thermal Characteristic

Symbol	Parameter	Typ	Max	Unit
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient		26.9	$^{\circ}\text{C/W}$



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Table 3. Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V I _D =-250μA	-60			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-60V, V _{GS} =0V T _J =25℃			-1	μA
		V _{DS} =-60V, V _{GS} =0V T _J =125℃			-100	μA
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		-2.5	V
g _{FS}	Forward Transconductance	V _{DS} =-5V, I _D =-10A		17		S
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =-10V, I _D =-10A T _J =25℃		46	57.5	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =-4.5V, I _D =-8A T _J =25℃		55	73.2	mΩ
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =-30V, V _{GS} =0V, f=1.0MHz		2220		pF
C _{oss}	Output Capacitance			84		pF
C _{rss}	Reverse Transfer Capacitance			68		pF
R _g	Gate resistance	V _{GS} =0V, V _{DS} =0V, f=1.0MHz		4.5		Ω
Switching Parameters						
t _{d(on)}	Turn-on Delay Time	V _{GS} =-10V, V _{DS} =-30V, R _L =3Ω, R _{GEN} =3Ω		11		nS
t _r	Turn-on Rise Time			7.2		nS
t _{d(off)}	Turn-Off Delay Time			64		nS
t _f	Turn-Off Fall Time			32		nS
Q _g	Total Gate Charge	V _{GS} =-10V, V _{DS} =-30V, I _D =-10A		40		nC
Q _{gs}	Gate-Source Charge			10		nC
Q _{gd}	Gate-Drain Charge			12		nC
Source-Drain Diode Characteristics						
I _{SD}	Source-Drain Current (Body Diode)				-6.8	A
V _{SD}	Forward on Voltage ^(Note 3)	V _{GS} =0V, I _S =-10A			-1.2	V
t _{rr}	Reverse Recovery Time	I _F =-10A, di/dt=-100A/μs		24		ns
Q _{rr}	Reverse Recovery Charge	I _F =-10A, di/dt=-100A/μs		16		nC

Notes 1.Repetitive Rating: Pulse width limited by maximum junction temperature.

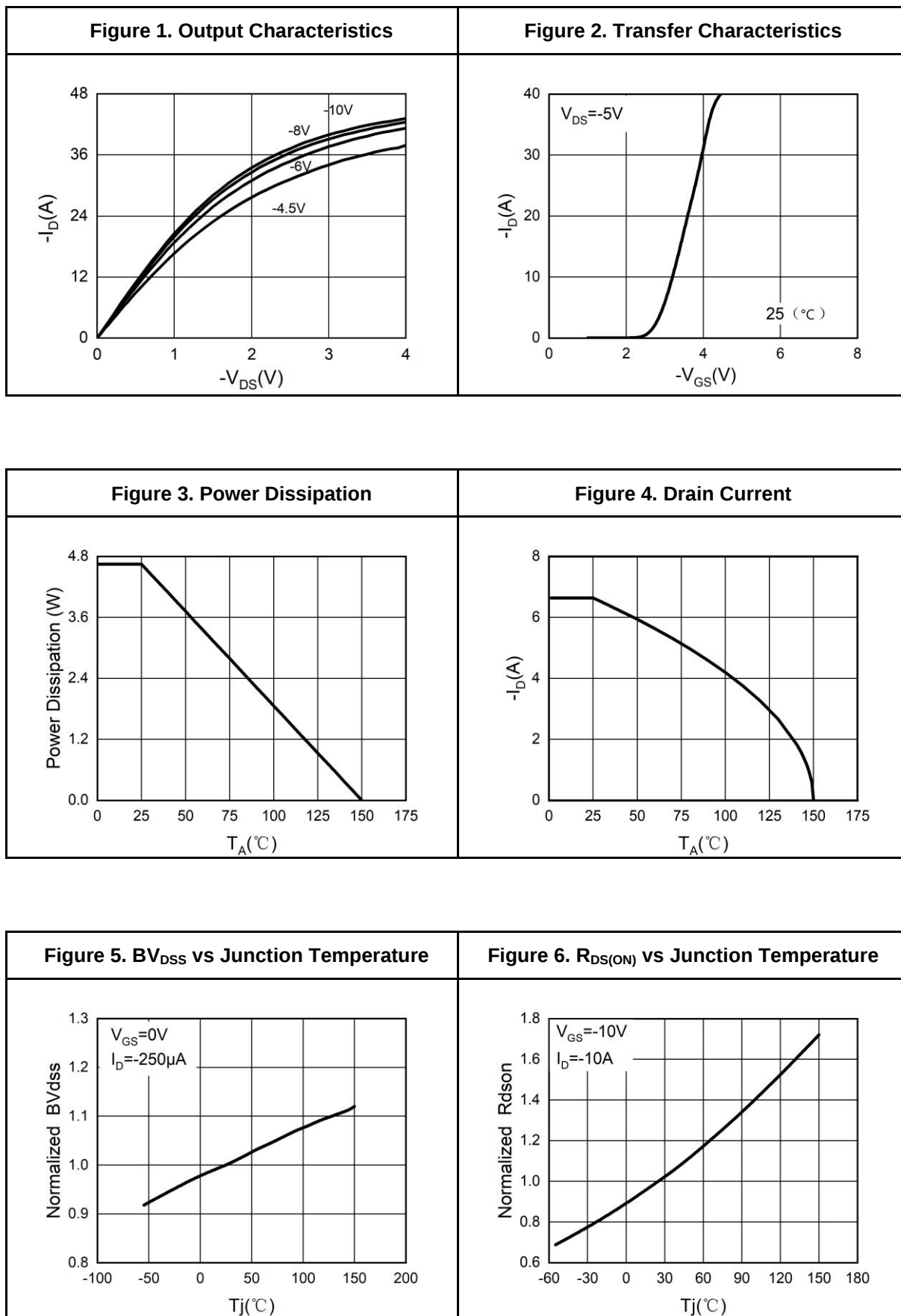
Notes 2.EAS condition: $T_J=25^{\circ}\text{C}, V_{DD}=-40V, V_G=-10V, R_g=25\Omega, L=0.5\text{mH}$.

Notes 3.Repetitive Rating: Pulse width limited by maximum junction temperature.



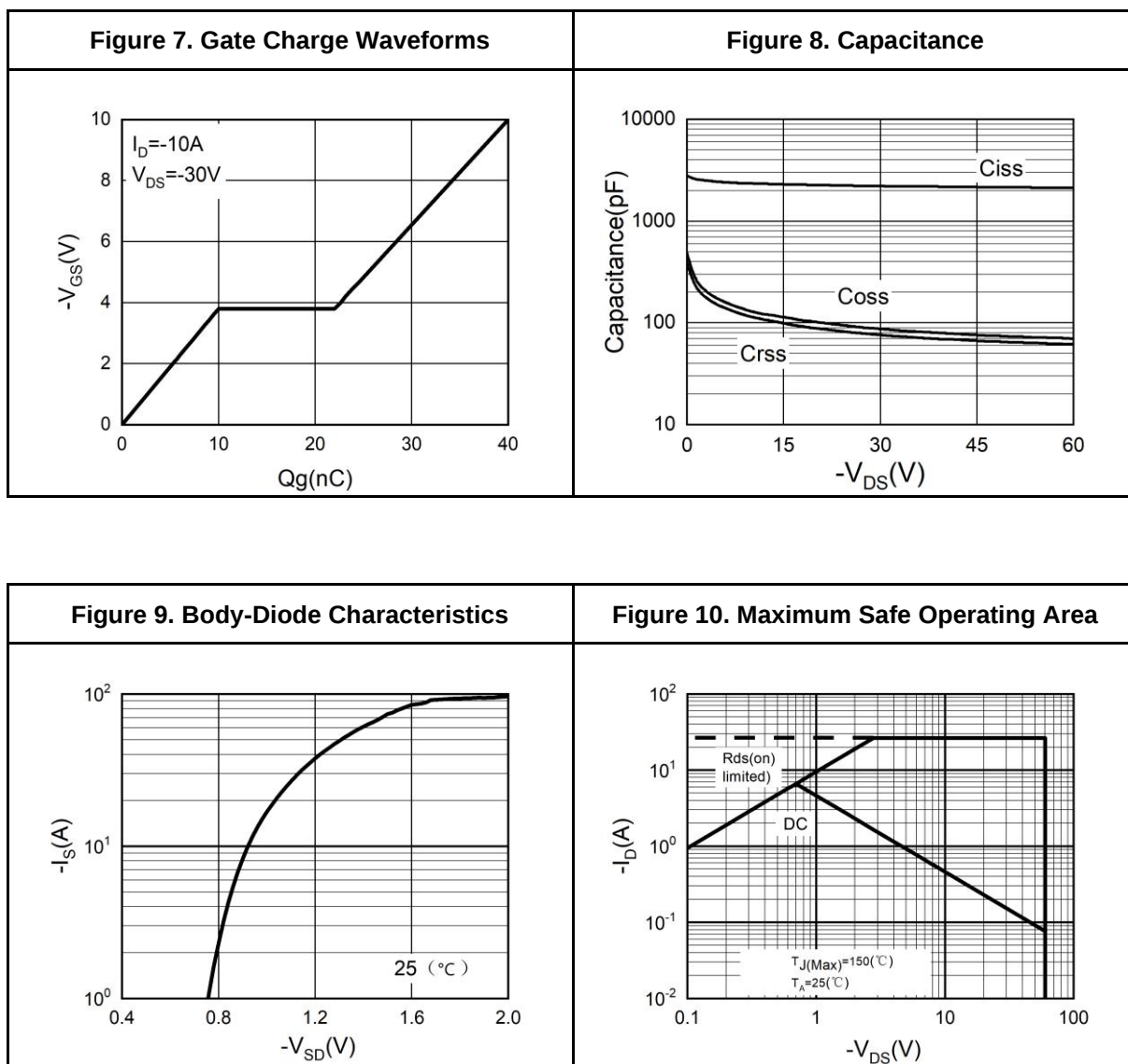
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Typical Electrical And Thermal Characteristics (Curves)



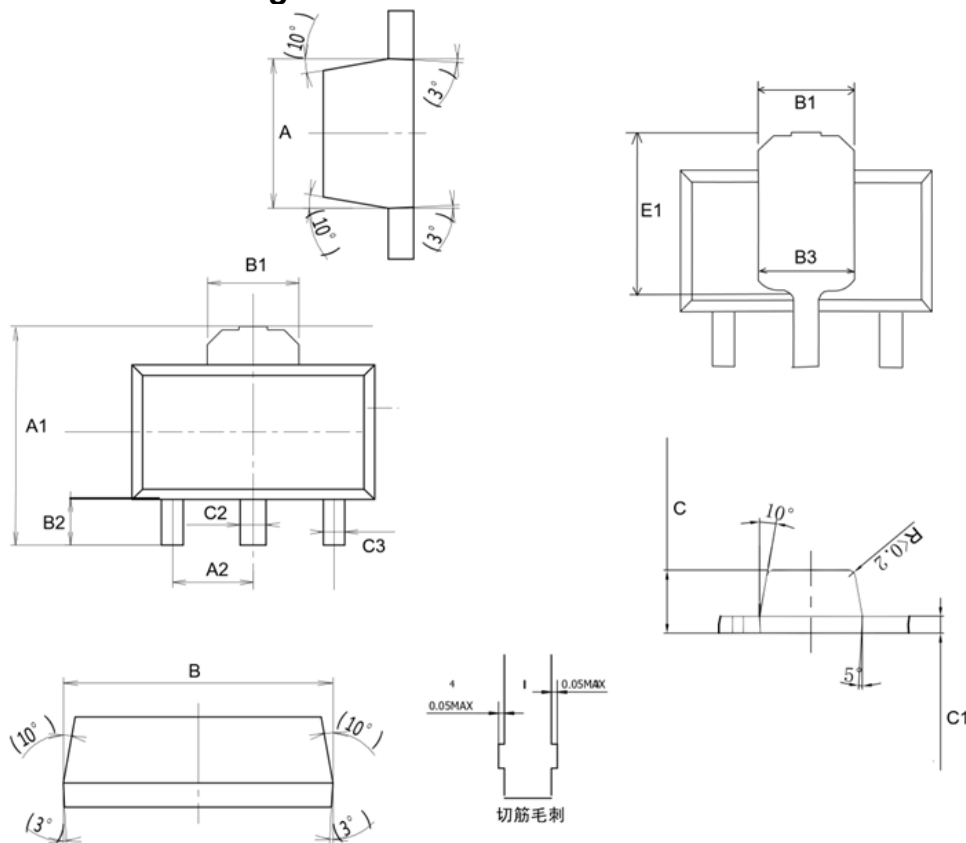


Typical Electrical And Thermal Characteristics (Curves)





SOT-89-3L Package Information



COMMON DIMENSIONS UNITS: MEASURE=MILLIMETER			
SYMBOL	MIN	MID	MAX
A	2.35	2.45	2.55
A1	4.135	4.235	4.335
A2	1.45	1.50	1.55
B	4.40	4.50	4.60
B1		1.55 REF	
B2	0.95	1.00	1.05
B3		1.63 REF	
C	1.45	1.50	1.55
C1	0.39	0.40	0.41
C2	0.4	0.48	0.55
C3	0.35	0.4	0.45
E1	2.65	2.75	2.85



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