

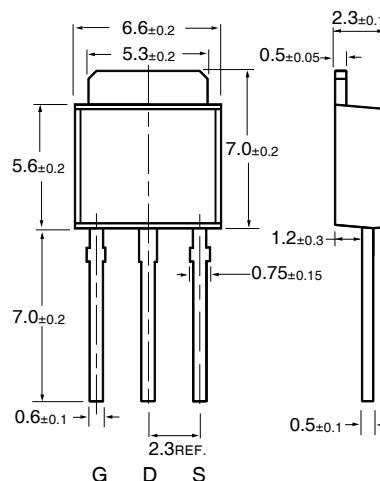
Description

The SID01L60 (through-hole version) is universally preferred for all commercial-industrial surface mount applications and suited for AC/DC converters.

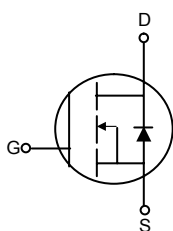
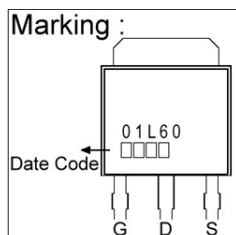
Features

- * RoHs Compliant
- * Simple Drive Requirement
- * Fast Switching Speed
- * Repetitive Avalanche Rated

TO-251



Dimensions in millimeters



Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	600	V
Gate-Source Voltage	V_{GS}	± 30	V
Continuous Drain Current, $V_{GS}@10V$	$I_D@T_C=25^\circ C$	1	A
Continuous Drain Current, $V_{GS}@10V$	$I_D@T_C=100^\circ C$	0.8	A
Pulsed Drain Current ¹	I_{DM}	3	A
Total Power Dissipation	$P_D@T_C=25^\circ C$	29	W
Linear Derating Factor		0.232	W/ $^\circ C$
Single Pulse Avalanche Energy ²	E_{AS}	0.5	mJ
Avalanche Current	I_{AR}	1	A
Repetitive Avalanche Energy	E_{AR}	0.5	mJ
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55~+150	$^\circ C$

Thermal Data

Parameter	Symbol	Ratings	Unit
Thermal Resistance Junction-case	R_{thj-c}	4.3	$^\circ C/W$
Thermal Resistance Junction-ambient	R_{thj-a}	110	$^\circ C/W$

Electrical Characteristics(T_j=25°C Unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Drain-Source Breakdown Voltage	BV _{DSS}	600	–	–	V	V _{GS} =0V, I _D =250uA
Breakdown Voltage Temp. Coefficient	ΔBV _{DS} /ΔT _j	–	0.8	–	V/°C	Reference to 25°C, I _D =1mA
Gate Threshold Voltage	V _{GS(th)}	2.0	–	4.0	V	V _{DS} =V _{GS} , I _D =250uA
Gate-Source Leakage Current	I _{GSS}	–	–	±100	nA	V _{GS} =± 30V
Drain-Source Leakage Current (T _j =25°C)	I _{DSS}	–	–	10	uA	V _{DS} =600V, V _{GS} =0
Drain-Source Leakage Current(T _j =150°C)		–	–	100	uA	V _{DS} =480V, V _{GS} =0
Static Drain-Source On-Resistance ³	R _{DS(ON)}	–	–	12	Ω	V _{GS} =10V, I _D =0.5A
Forward Transconductance	G _{fs}	–	0.8	–	S	V _{DS} =10V, I _D =0.5A
Total Gate Charge ³	Q _g	–	4	–	nC	I _D =1 A V _{DS} =480V V _{GS} = 10V
Gate-Source Charge	Q _{gs}	–	1	–		
Gate-Drain ("Miller") Charge	Q _{gd}	–	1.1	–		
Turn-on Delay Time ³	T _{d(ON)}	–	6.6	–	nS	V _{DD} =300V I _D =1 A V _{GS} =10V R _G =3.3Ω R _D =300 Ω
Rise Time	T _r	–	5	–		
Turn-off Delay Time	T _{d(Off)}	–	11.7	–		
Fall Time	T _f	–	9.2	–		
Input Capacitance	C _{iss}	–	170	–	pF	V _{GS} =0V V _{DS} =25V f=1.0MHz
Output Capacitance	C _{oss}	–	30.7	–		
Reverse Transfer Capacitance	C _{rss}	–	5.1	–		

Source-Drain Diode

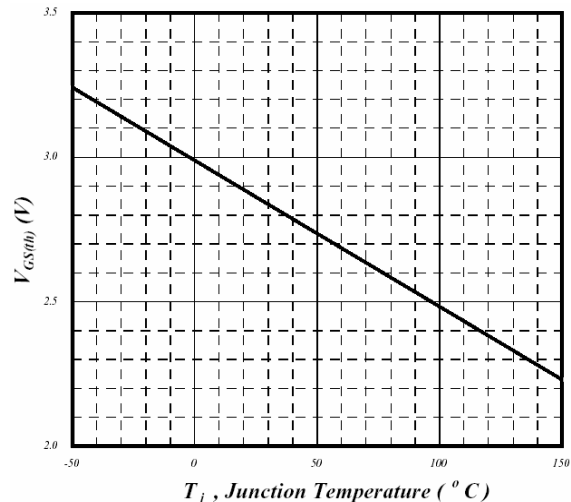
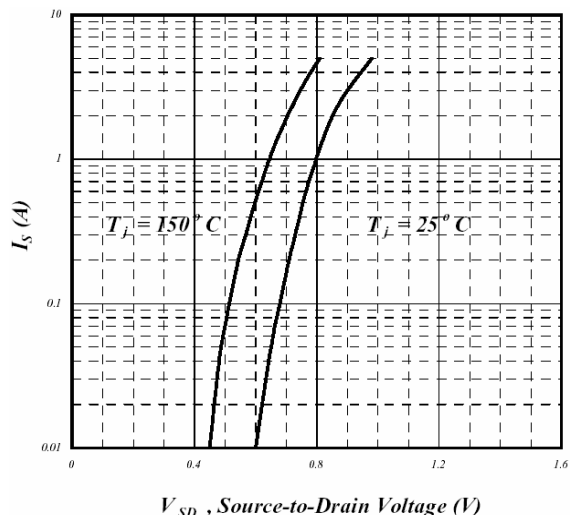
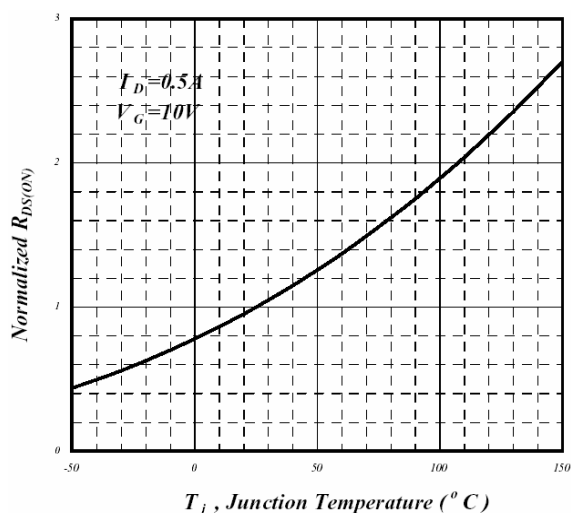
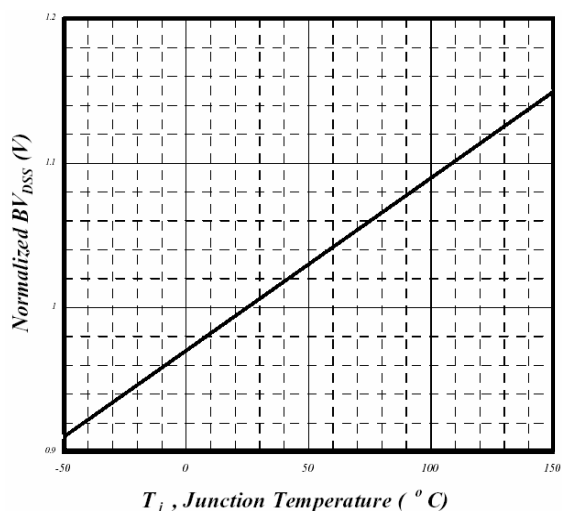
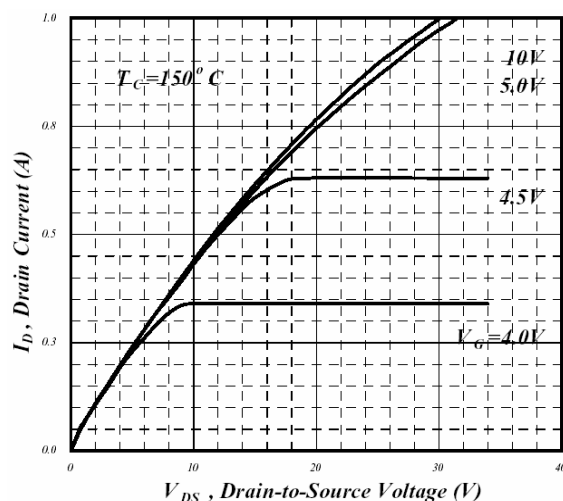
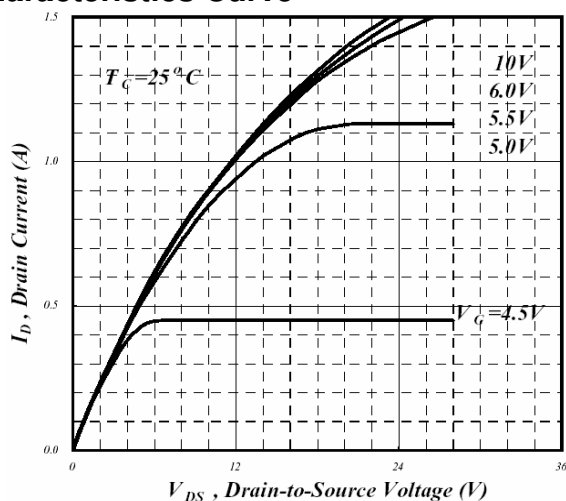
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Forward On Voltage ³	V _{SD}	–	–	1.2	V	I _S =1A, V _{GS} =0V. T _j =25°C
Continuous Source Current(Body Diode)	I _S	–	–	1	A	V _D =V _G =0V, V _S =1.2 V
Pulsed Source Current(Body Diode) ¹	I _{SM}	–	–	5	A	

Notes: 1. Pulse width limited by safe operating area.

2. Staring T_j=25°C, V_{DD}=50V, L=10mH, R_G=25Ω, I_{AS}=1.0A.

3. Pulse width ≤ 300us, duty cycle ≤ 2%.

Characteristics Curve



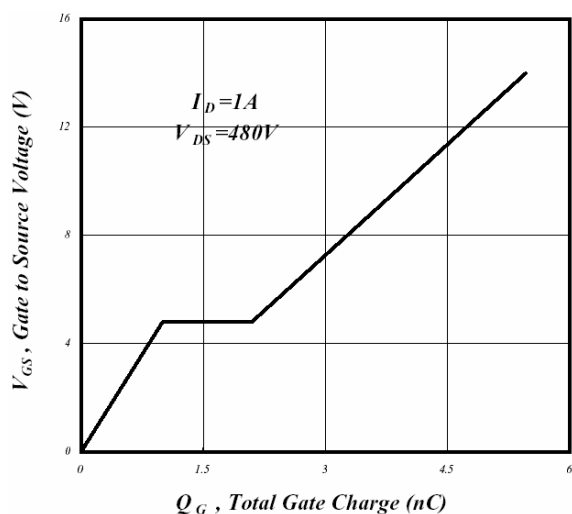


Fig 7. Gate Charge Characteristics

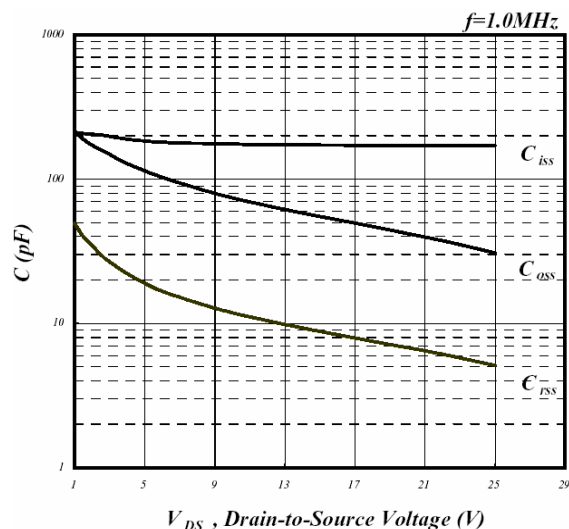


Fig 8. Typical Capacitance Characteristics

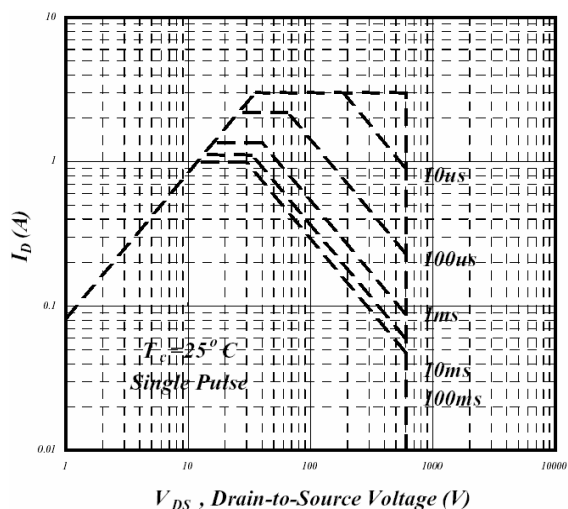


Fig 9. Maximum Safe Operating Area

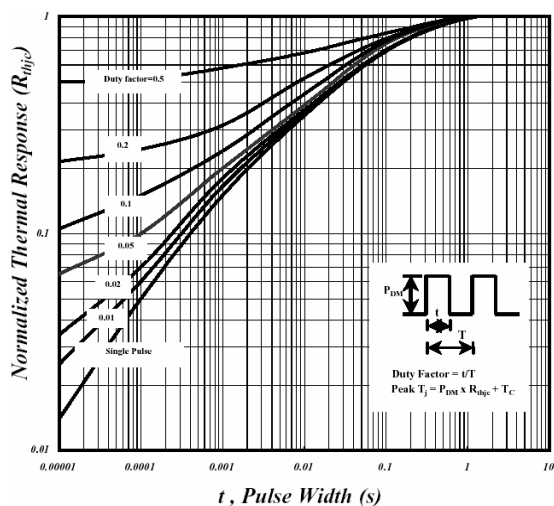


Fig 10. Effective Transient Thermal Impedance

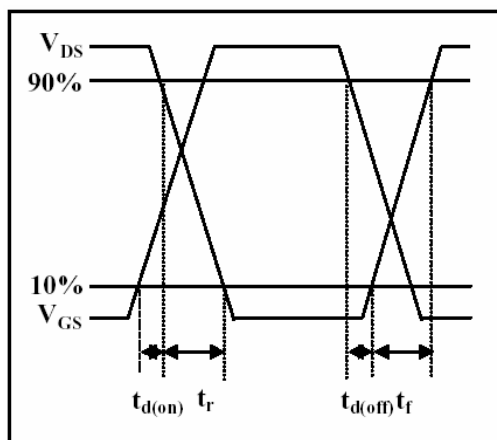


Fig 11. Switching Time Waveform

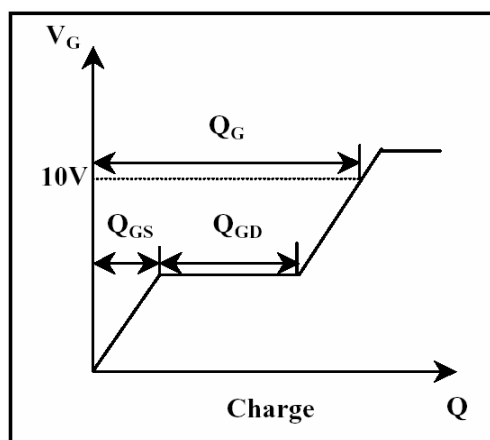


Fig 12. Gate Charge Waveform