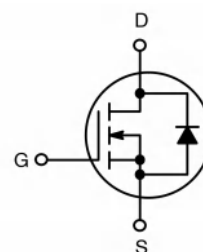
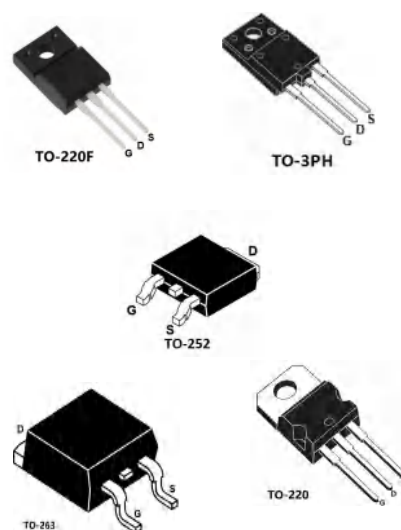


N-channel 1000V – 3.5Ω 5A

General features

Type	VDSS(@Tjmax)	RDS(on)	ID
SL5N100P	1000 V	< 4.2 Ω	5A
SL5N100F	1000 V	< 4.2 Ω	5A
SL5N100	1000 V	< 4.2 Ω	5A
SL5N100K	1000 V	< 4.2 Ω	5A
SL5N100D	1000 V	< 4.2 Ω	5A

- Extremely high dv/dt capability
- 100% avalanche tested
- Gate charge minimized
- Very low intrinsic capacitances
- Very good manufacturing repeatability



Applications

- Switching application

Order codes

Partnumber	Package
SL5N100P	TO-3PH
SL5N100F	TO-220F
SL5N100	TO-220
SL5N100K	TO-263/D2PAK
SL5N100D	TO-252/DPAK

Electrical ratings

Absolute maximum ratings

Parameter	Symbol	Value				Unit
		TO-3PH	TO-220F	TO-220/ TO-252	TO-263	
Drain-source voltage (V _{GS} =0)	V _{DS}	1000				V
Gate-source voltage	V _{GS}	±30				
Drain current (continuous) at TC=25℃	I _D	5				A
Drain current (continuous) at TC=100℃	I _D	3				
Drain current (pulsed)	I _{DM}	18	18	18	18	
Total dissipation at TC=25℃	PTOT	48	60	60	80	W

Drain source ESD (HBM-C=100pF,R=1.5K Ω)	$V_{ESD(GS)}$	4000	V
Peak diode recovery voltage slope	dv/dt	4.5	V/ns
Insulation withstand voltage(RMS)from all three leads to external heat sink (t=1s TC=25 $^{\circ}$ C)	V_{ISO}	2500	v
Operating junction temperature	T_J	-55 to 175	$^{\circ}$ C
Storage temperature	T_{STG}		

Thermal data

Parameter	Symbol	Value				Unit
		TO-220F	TO-3PH	TO-220/ TO-252	TO-263	
Thermal resistance junction max	Rthj-case	4.2	2.6	4.2	0.63	$^{\circ}$ C/W
Thermal resistance junction-ambient max	Rtha-case	68	58	68	35	$^{\circ}$ C/W
Maximum lead temperature for soldering purpose	T	350				mJ

Avalanche characteristics

Parameter	Symbol	Value	Unit
Avalanche current repetitive or not-repetitive (pulse width limited by Tj Max)	IAR	5	A
Single pulse avalanche energy (starting Tj=25 $^{\circ}$ C Id=Iar Vdd=50V)	EAS	583	mJ

Electrical characteristics (T_{CASE}=25 $^{\circ}$ C unless otherwise specified)

On/off states

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Drain-source breakdown voltage	$V_{(BR)DS}$	ID=1mA VGS=0	1000			V
Zero gate voltage drain current (VGS=0)	IDSS	VDS=Max rating			1	μ A
		TC=125 $^{\circ}$ C			50	μ A
Gate body leakage current (VGS=0)	IGSS	VGS=±20V			±10	μ A
Gate threshold voltage	$V_{GS(th)}$	VDS=VGS ID=100 μ A	3	3.5	4.5	V

Static drain-source on resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=1.75A$		3.5	4.2	Ω
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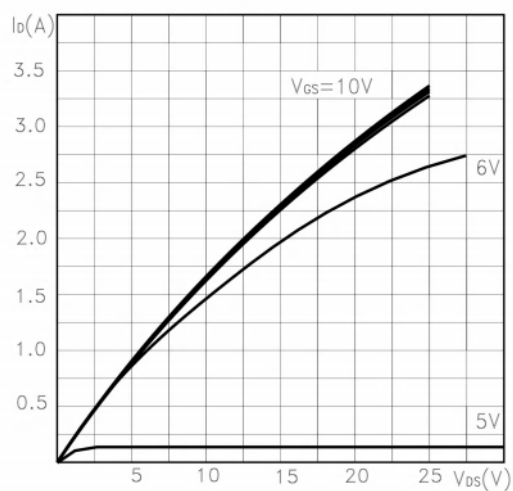
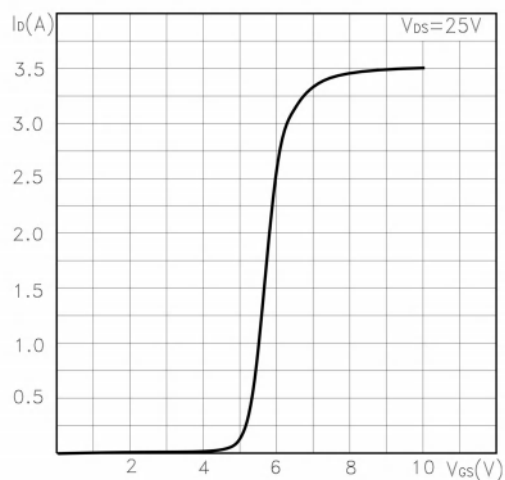
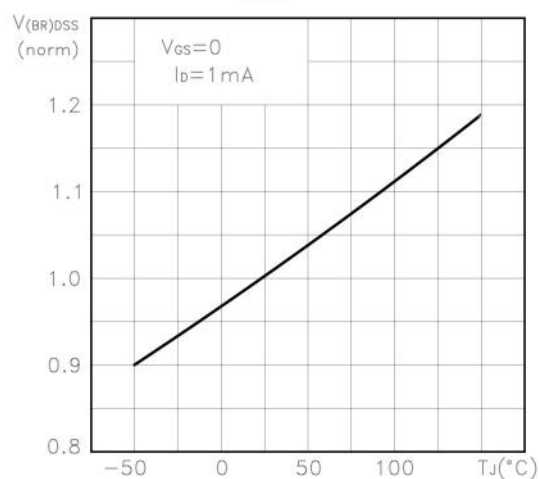
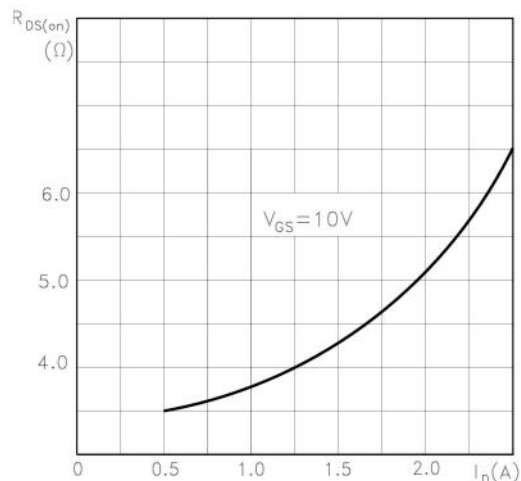
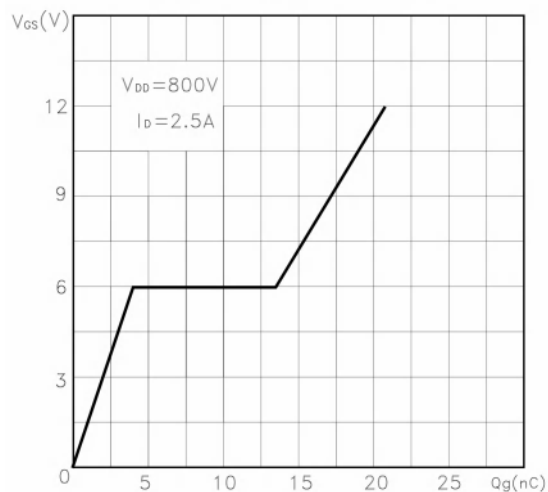
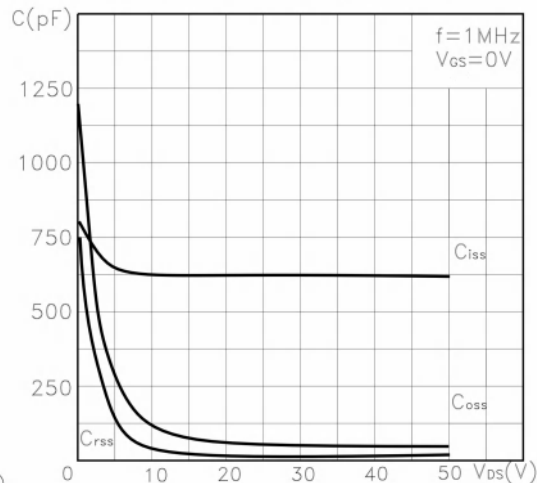
Dynamic

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Forward transconductance	g_{fs}	$V_{DS} = 40 V, I_D = 4A$		5		S
Input capacitance	C_{iss}	$V_{DS}=25V, f=1MHz, V_{GS}=0$		483		pF
Output capacitance	C_{oss}			45		
Reverse transfer capacitance	C_{rss}			9		
Equivalent Output capacitance	$C_{oss\ eq.}$	$V_{GS}=0, V_{DS}=0 \text{ to } 800V$		46.8		
Gate input resistance	R_g	$f=1MHz$ Gate DC Bias=0 Test signal level=20mV open drain		3.65		Ω
Total gate charge	Q_g	$V_{DD}=750V, I_D=4A$ $V_{GS}=10V$		12.67		nC
Gate-source charge	Q_{gs}			3.7		
Gate-drain charge	Q_{gd}			4.23		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 500 V, I_D = 1.75 A,$ $R_G = 4.7 \Omega, V_{GS} = 10 V$		11.3		ns
Rise time	t_r			18.5		
Turn-off-delay time	$t_{d(off)}$			55		
Fall time	t_f			17		

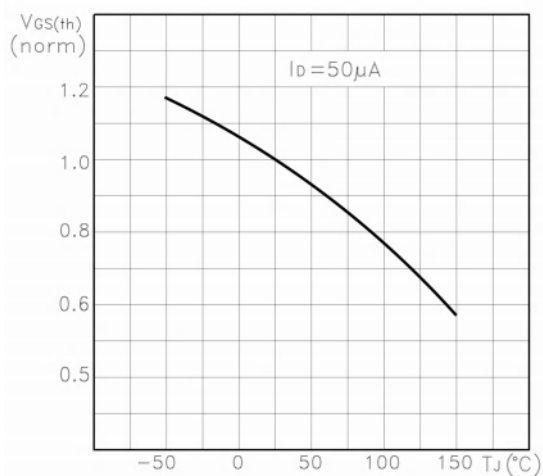
Source Drain Diode

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Source Drain Current	I_{SD}				5	A
Source Drain Current(Pulsed)	I_{SDM}				20	A
Forward On Voltage	V_{SD}	$I_{SD}=5A, V_{GS}=0V$			1.2	V
Reverse Recovery Time	T_{rr}	$I_{SD}=4A, di/dt=100A/\mu S$		154		ns
Reverse Recovery Charge	Q_{rr}	$V_R=100V, T_j=150^\circ C$		677		nC
Reverse Recovery Current	I_{RRM}			5.23		A

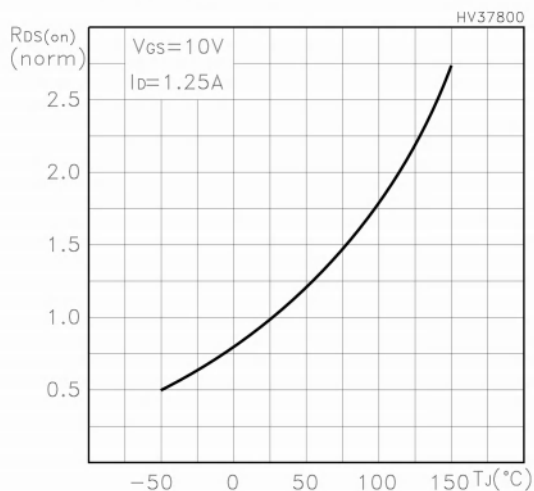
Electrical characteristics (curves)

Output characteristics

Transfer characteristics

Normalized BV_{DSS} vs. temperature

Static drain-source on resistance

Gate charge vs. gate-source voltage

Capacitance variations


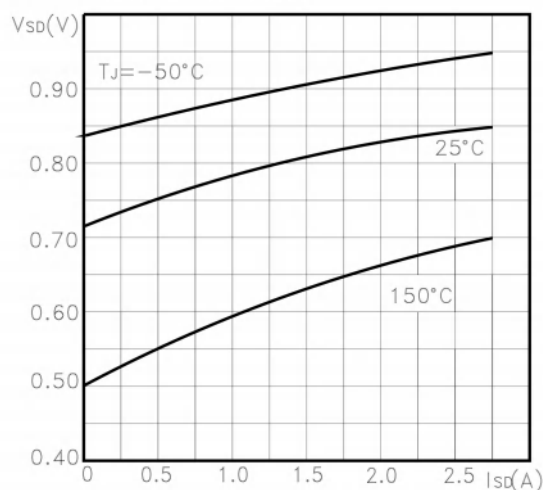
Normalized gate threshold voltage vs. temperature



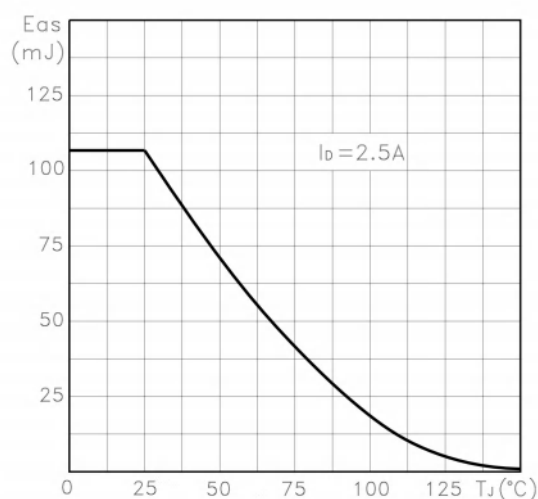
Normalized on resistance vs. temperature



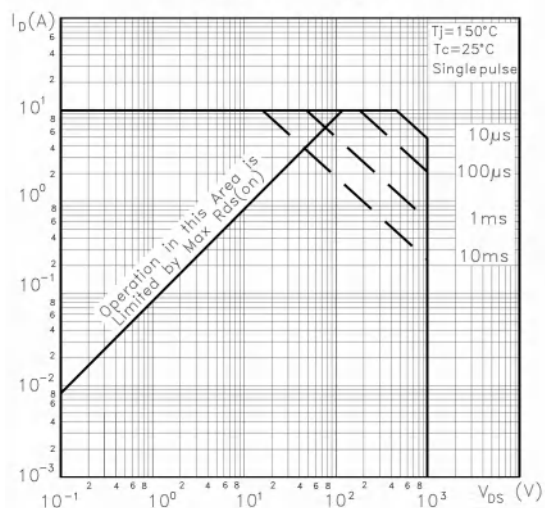
Source-drain diode forward characteristics



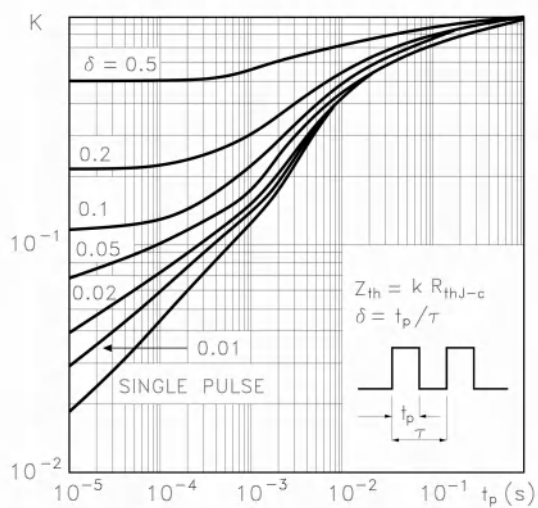
Maximum avalanche energy vs T_J



Safe operating area

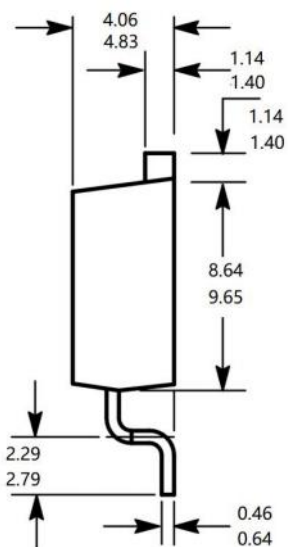
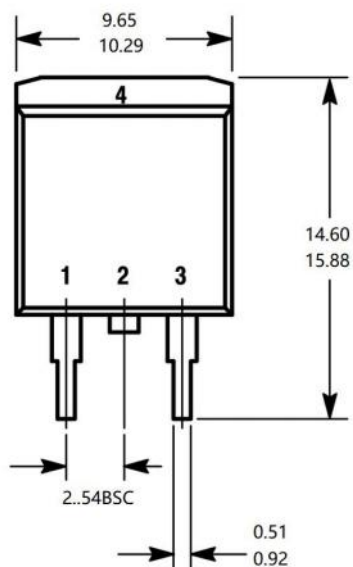


Thermal impedance

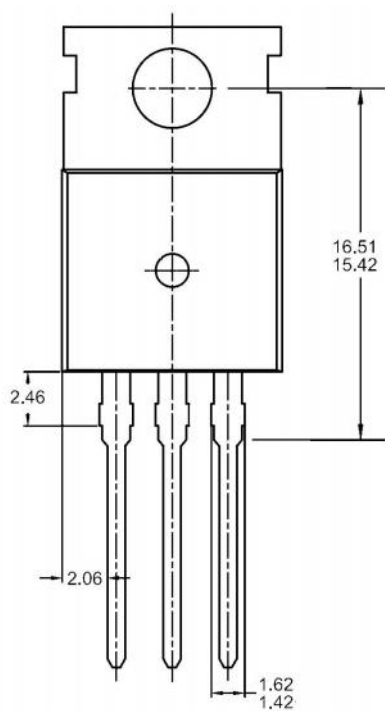


Package outline dimension

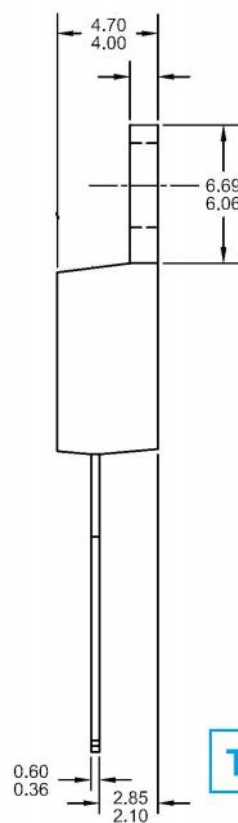
TO-263/D2PAK



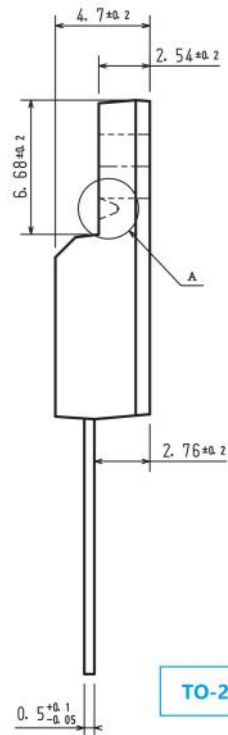
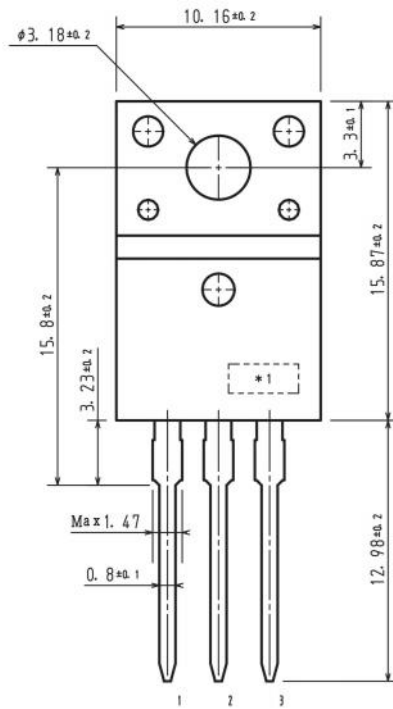
TO-263/D2PAK



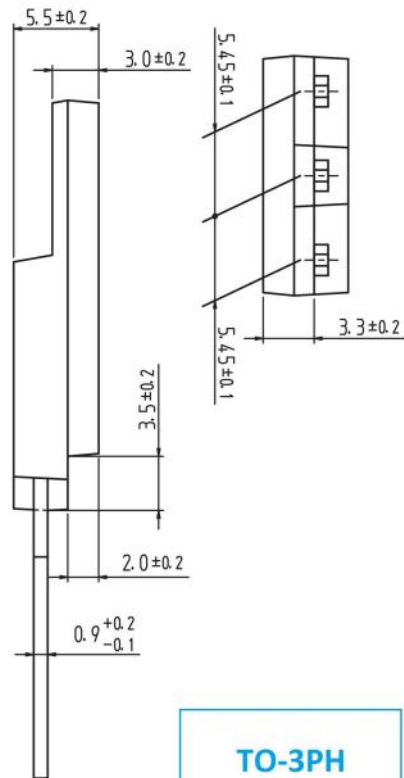
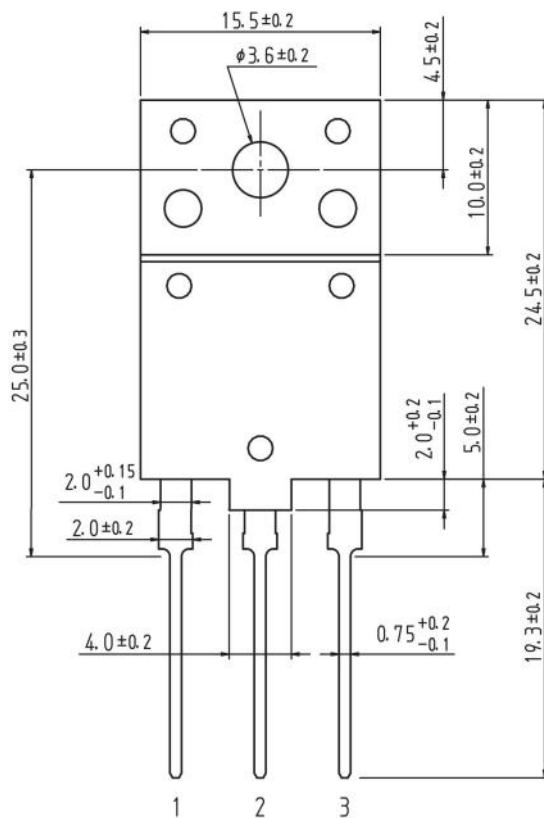
TO-220



TO-220



TO-220F



TO-3PH

