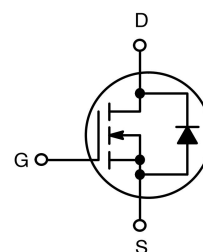
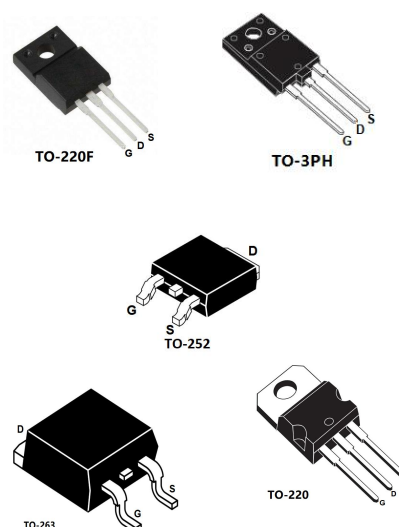


N-channel 1000V – 3.5Ω 5A

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 $TC=25^{\circ}C$	I_D	5				A
Drain current (continuous) at $TC=100^{\circ}C$	I_D	3				
Drain current (pulsed)	I_{DM}	18	18	18	18	
Total dissipation at $TC=25^{\circ}C$	PTOT	48	60	60	80	W

Drain source ESD (HBM-C=100pF,R=1.5KΩ)	$V_{ESD(GS)}$	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°C)	V_{ISO}	2500	v
Operating junction temperature	T_J	-55 to 175	°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	°C/W
Thermal resistance junction-ambient max	Rtha-case	68	58	68	35	°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°C Id=Iar Vdd=50V)	EAS	583	mJ

Electrical characteristics (T_{CASE}=25°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	μA
		TC=125°C			50	μA
Gate body leakage current (VGS=0)	IGSS	VGS=±20V			±10	μA
Gate threshold voltage	$V_{GS(th)}$	VDS=VGS ID=100 μA	3	3.5	4.5	V

Static drain-source on resistance	RDS(on)	VGS=10V ID=1.75A		3.5	4.2	Ω
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Dynamic

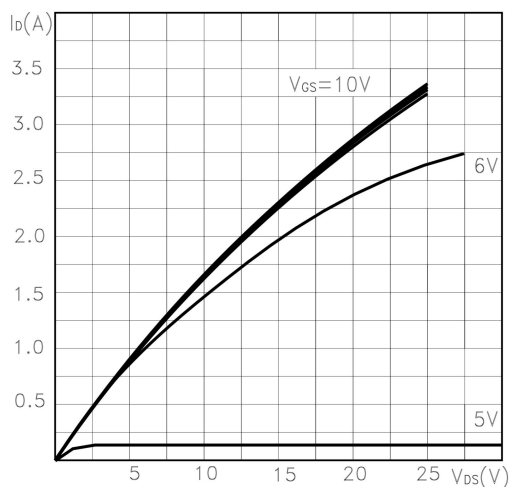
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Forward transconductance	g_{fs}	$V_{DS} = 40\text{ V}, I_D = 4\text{ A}$		5		S
Input capacitance	C_{iss}	$V_{DS}=25\text{V}, f=1\text{MHz}, V_{GS}=0$		483		pF
Output capacitance	C_{oss}			45		
Reverse transfer capacitance	C_{rss}			9		
Equivalent Output capacitance	$C_{oss\ eq.}$	$V_{GS}=0, V_{DS}=0\text{ to }800\text{V}$		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	$V_{DD}=750\text{V}, I_D=4\text{A}$ $V_{GS}=10\text{V}$		12.67		nC
Gate-source charge	Q_{gs}			3.7		
Gate-drain charge	Q_{gd}			4.23		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 500\text{ V}, I_D = 1.75\text{ A},$ $R_G = 4.7\ \Omega, V_{GS} = 10\text{ V}$		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

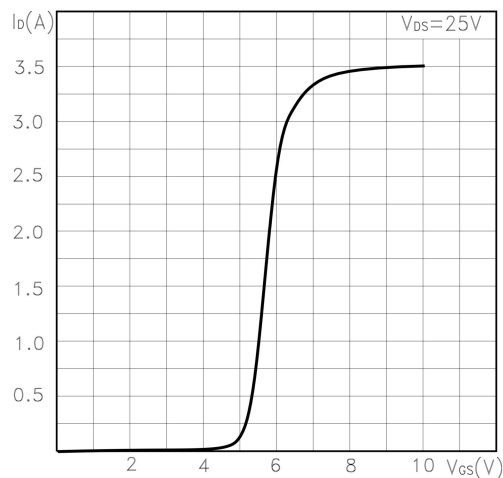
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Source Drain Current	I_{SD}				5	A
Source Drain Current(Pulsed)	I_{SDM}				20	A
Forward On Voltage	V_{SD}	$I_{SD}=5\text{A}, V_{GS}=0\text{V}$			1.2	V
Reverse Recovery Time	T_{rr}	$I_{SD}=4\text{A}, di/dt=100\text{A}/\mu\text{S}$		154		ns
Reverse Recovery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

Electrical characteristics (curves)

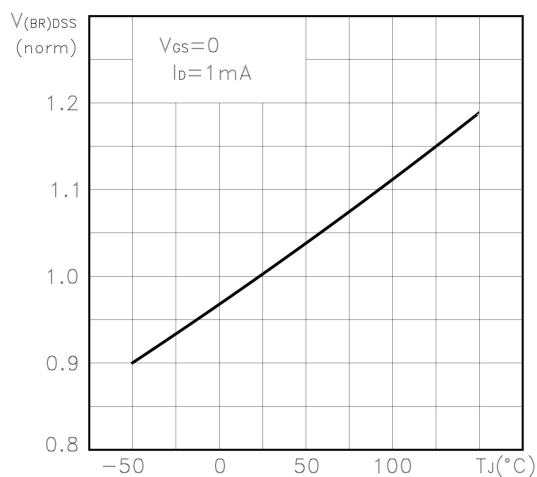
Output characteristics



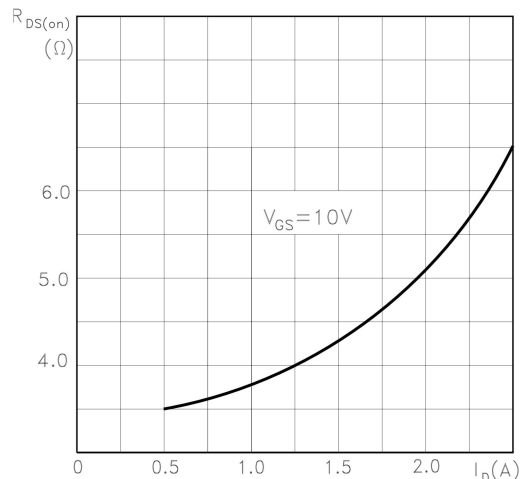
Transfer characteristics



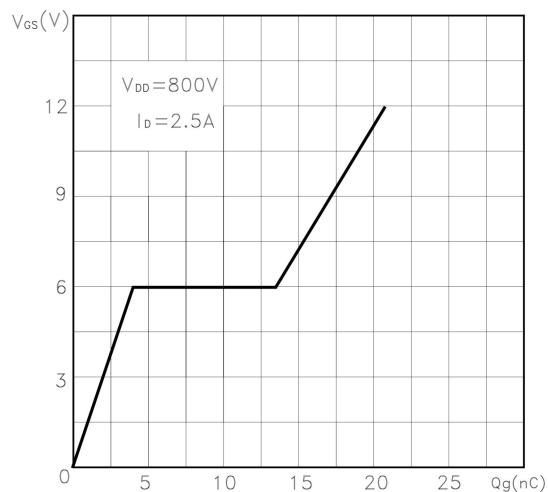
Normalized BV_{DSS} vs. temperature



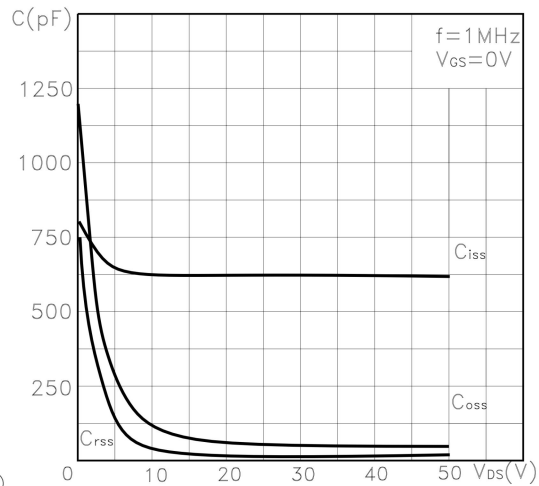
Static drain-source on resistance



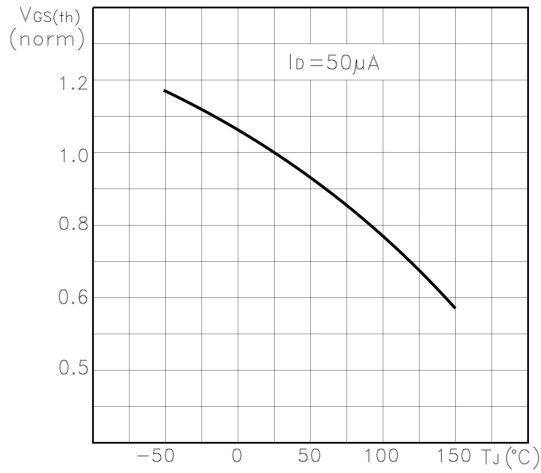
Gate charge vs. gate-source voltage



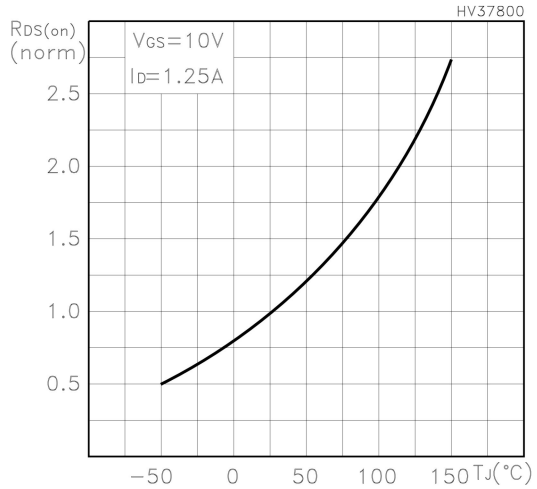
Capacitance variations



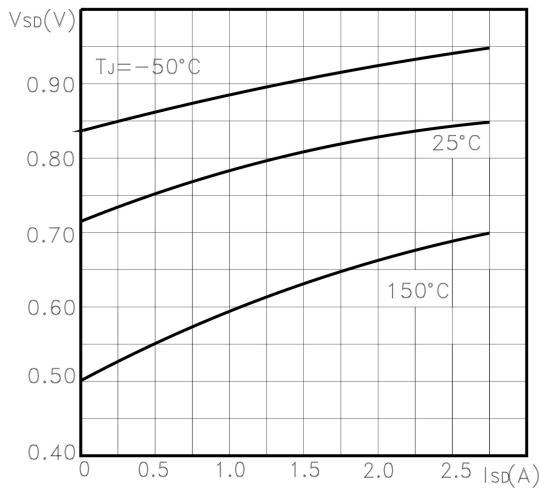
Normalized gate threshold voltage vs. temperature



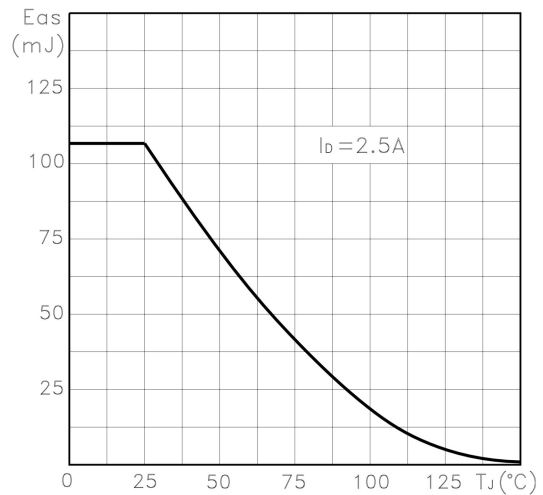
Normalized on resistance vs. temperature



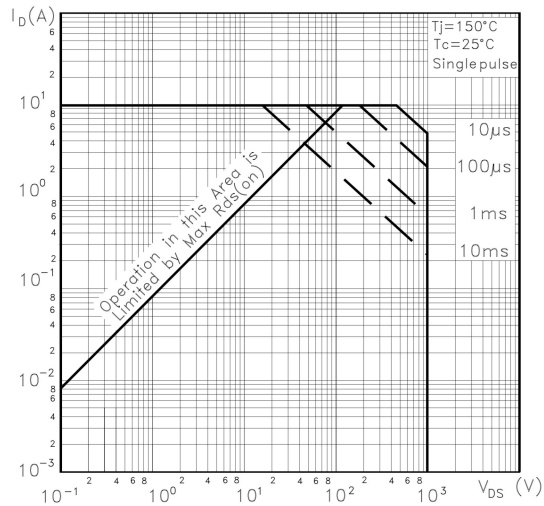
Source-drain diode forward characteristics



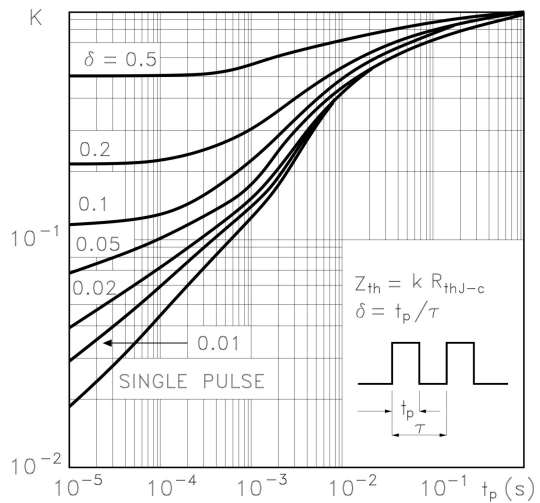
Maximum avalanche energy vs Tj



Safe operating area

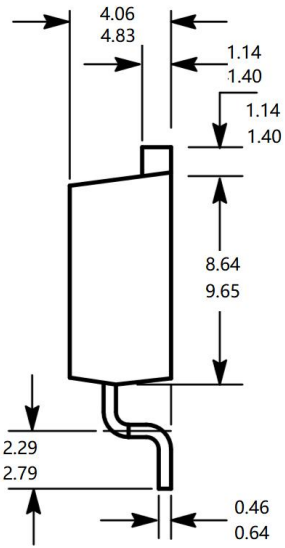
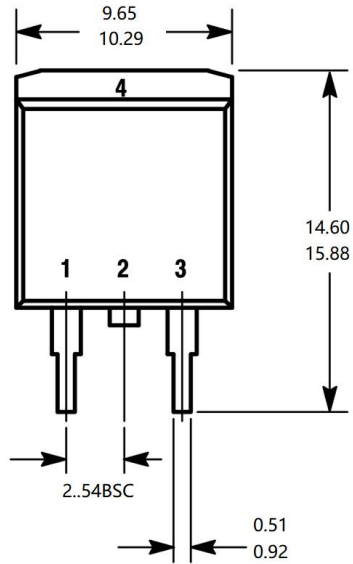


Thermal impedance

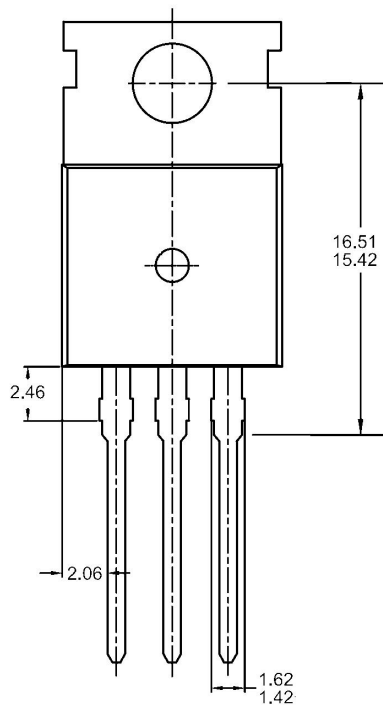


Package outline dimension

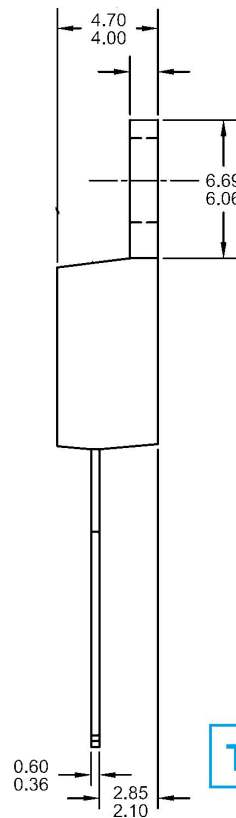
TO-263/D2PAK



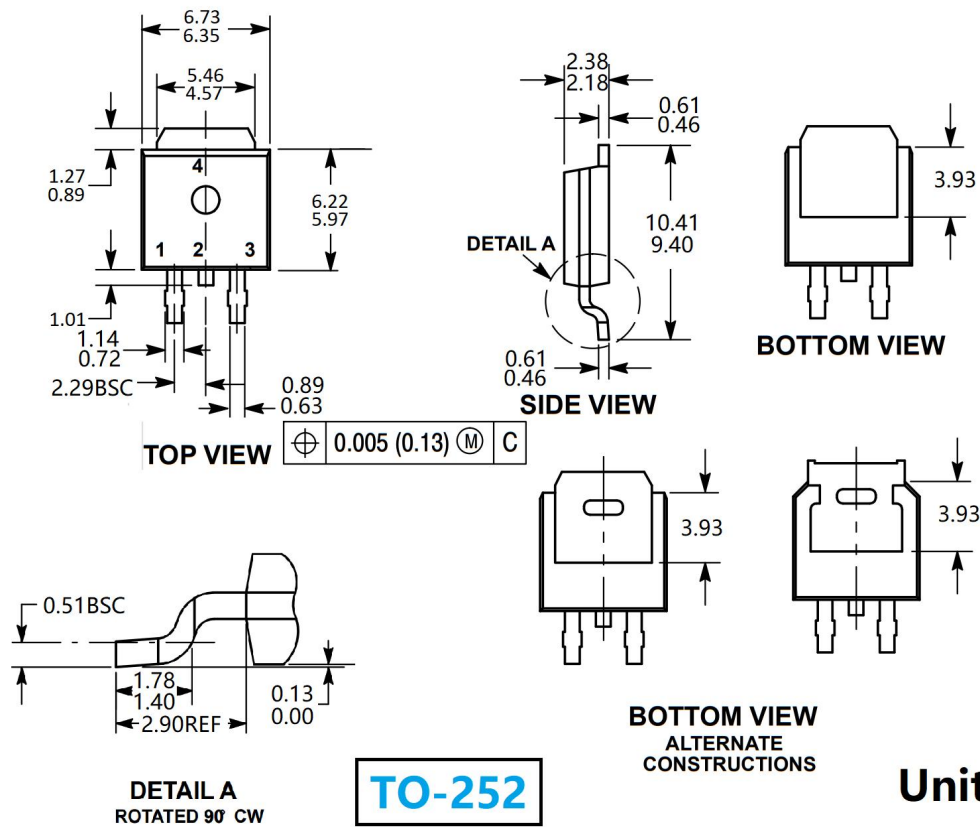
TO-263/D2PAK



TO-220



TO-220



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