

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
80V	4.5mΩ@10V	145A



合肥矽普半导体

Siliup Semiconductor Technology Co., Ltd

技术 品质 服务

www.siliup.com

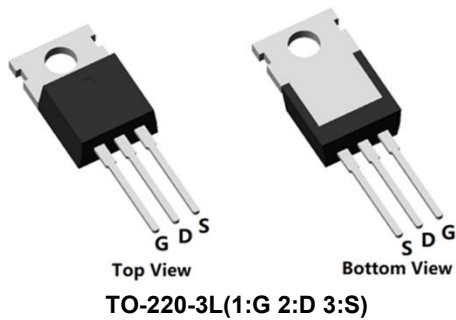
Feature

- Fast Switching
- Low Gate Charge and Rdson
- 100% Single Pulse avalanche energy Test

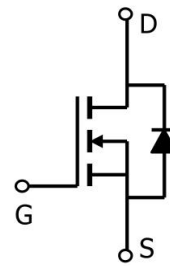
Applications

- Power switching application
- DC-DC Converter
- Power Management

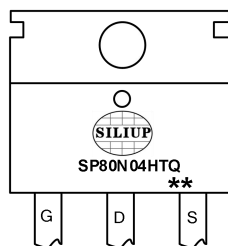
Package



Circuit diagram



Marking



SP80N04HTQ : Product code
** : Week code

Order Information

Device	Package	Unit/Tube
SP80N04HTQ	TO-220-3L	50

Absolute maximum ratings (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain source voltage	V_{DS}	80	V
Gate source voltage	V_{GS}	± 20	V
Continuous drain current(Tc=25°C)	I_D	145	A
Continuous drain current(Tc=100°C)	I_D	100	A
Pulsed drain current	I_{DM}	580	A
Single pulsed avalanche energy ¹	E_{AS}	380	mJ
Power dissipation(Tc=25°C)	P_D	244	W
Thermal resistance, junction-case	$R_{\theta JC}$	0.51	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

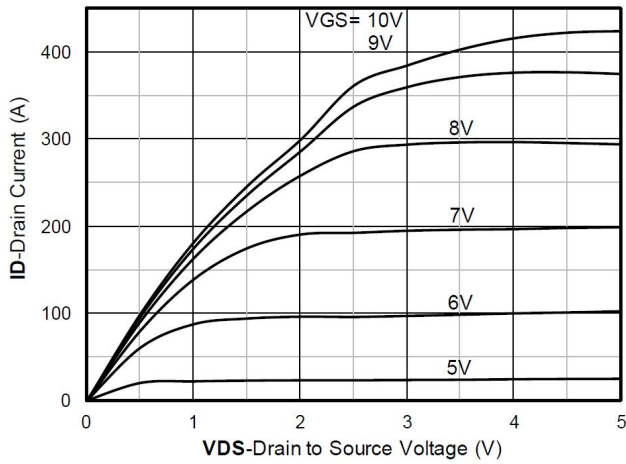
Electrical characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V , ID=250uA	80	-	-	V
Drain-Source Leakage Current	IDSS	VDS=64V , VGS=0V , TJ=25℃	-	-	1	uA
Gate-Source Leakage Current	IGSS	VGS=±20V , VDS=0V	-	-	±100	nA
Gate Threshold Voltage	VGS(th)	VGS=VDS , ID =250uA	2	2.5	4	V
Static Drain-Source On-Resistance	RDS(ON)	VGS=10V , ID=50A	-	4.5	5.7	mΩ
Dynamic characteristics						
Input Capacitance	Ciss	VDS=40V , VGS=0V , f=1MHz	-	4533	-	pF
Output Capacitance	Coss		-	514	-	
Reverse Transfer Capacitance	Crss		-	237	-	
Total Gate Charge	Qg	VDS=40V , VGS=10V , ID=40A	-	110	-	nC
Gate-Source Charge	Qgs		-	24	-	
Gate-Drain Charge	Qgd		-	44	-	
Switching Characteristics						
Turn-On Delay Time	Td(on)	VDD=40V, VGS=10V , RG=2.7Ω	-	23	-	ns
Rise Time	Tr		-	84	-	
Turn-Off Delay Time	Td(off)		-	48	-	
Fall Time	Tf		-	64	-	
Diode Characteristics						
Diode Forward Voltage	VSD	VGS=0V , IS=40A , TJ=25℃	-	-	1.4	V
Diode Continuous Current	IS		-	-	145	A
Reverse recover time	Trr	ISD=40A, di/dt=100A/us, Tj=25℃	-	38	-	ns
Reverse recovery charge	Qrr		-	63	-	nC

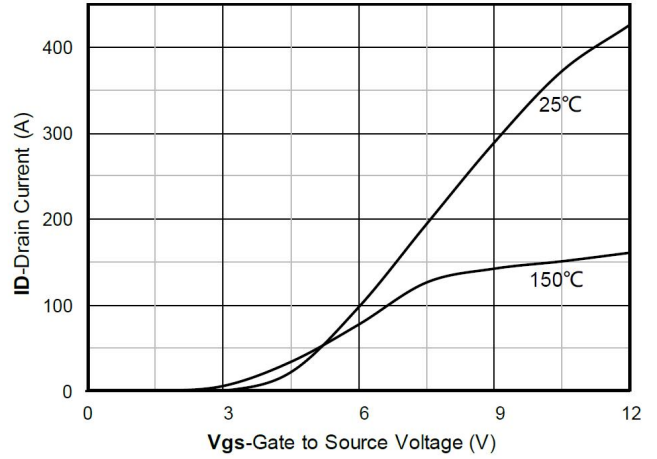
Note:

- E_{AS} is tested at starting $T_J = 25^\circ C$, $V_{DD}=40V, V_{GS} = 10V, L = 0.5mH, R_G=25\Omega$;

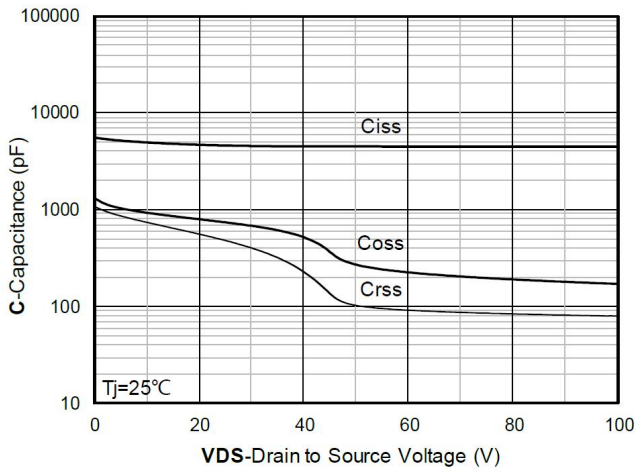
Typical Characteristics



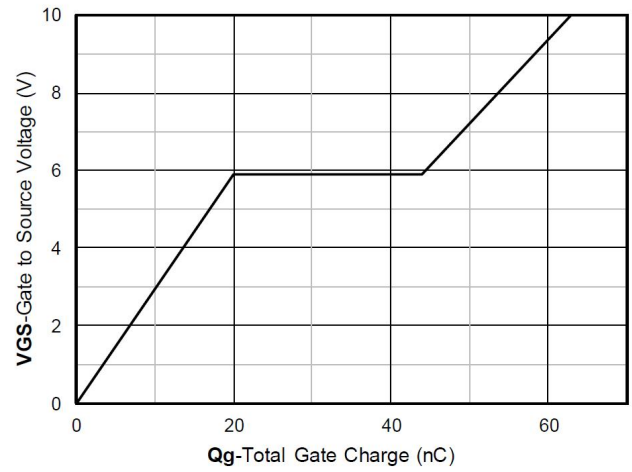
Output Characteristics



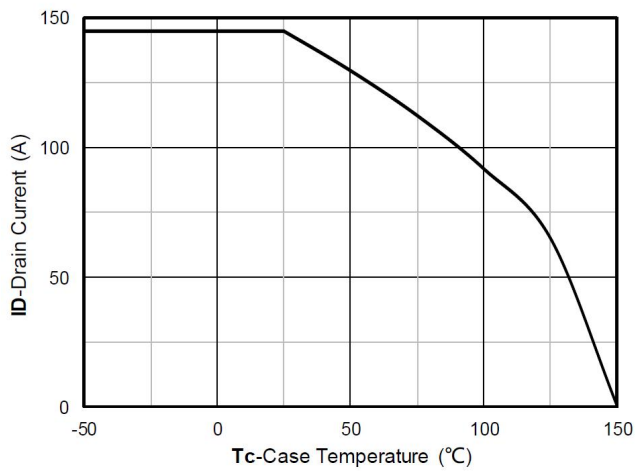
Transfer Characteristics



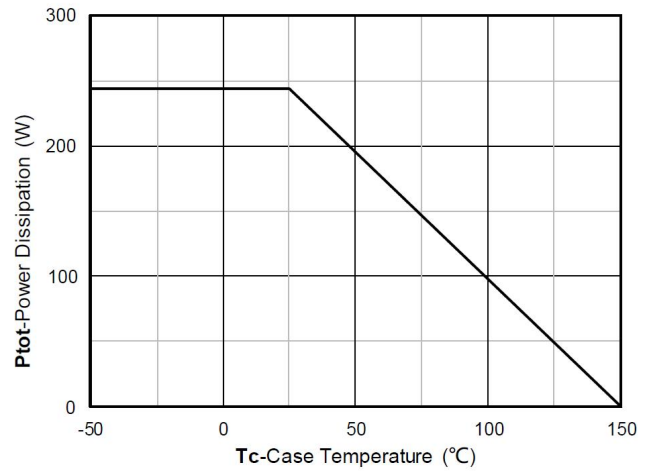
Capacitance Characteristics



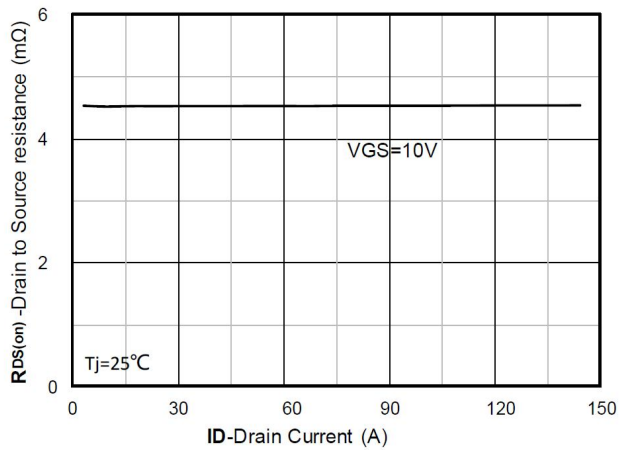
Gate Charge



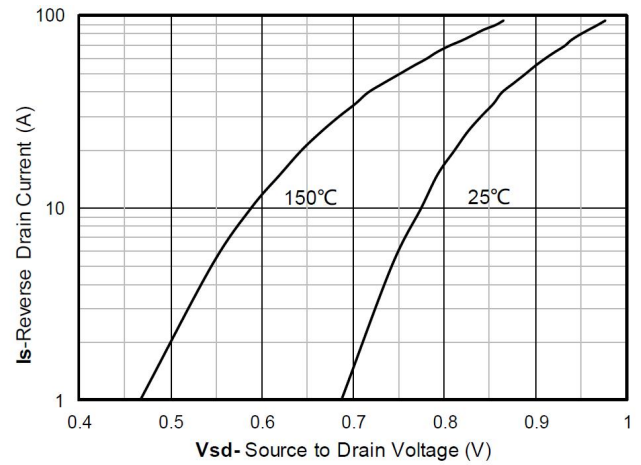
Current dissipation



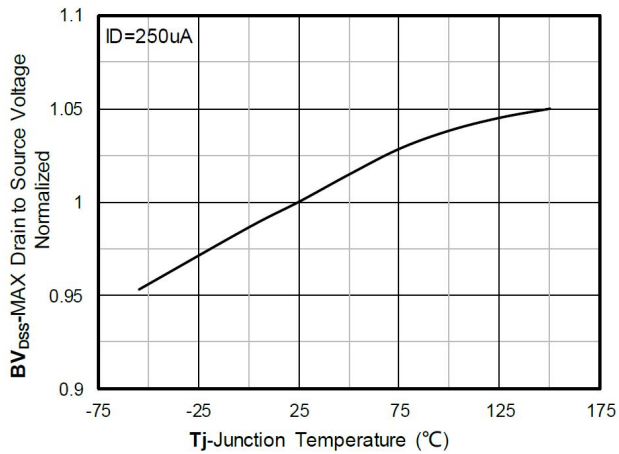
Power dissipation



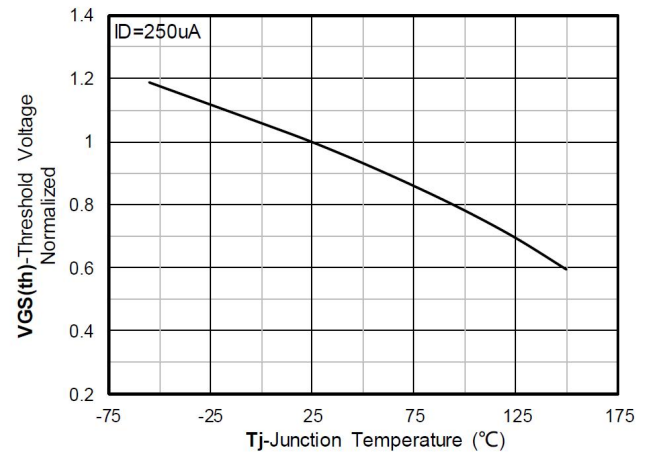
RDS(on) VS Drain Current



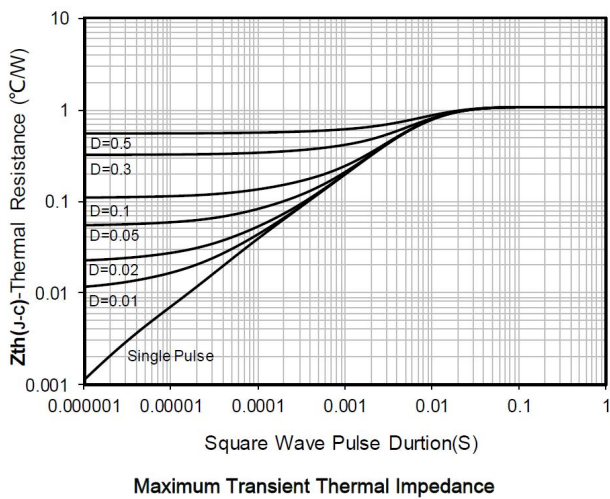
Forward characteristics of reverse diode



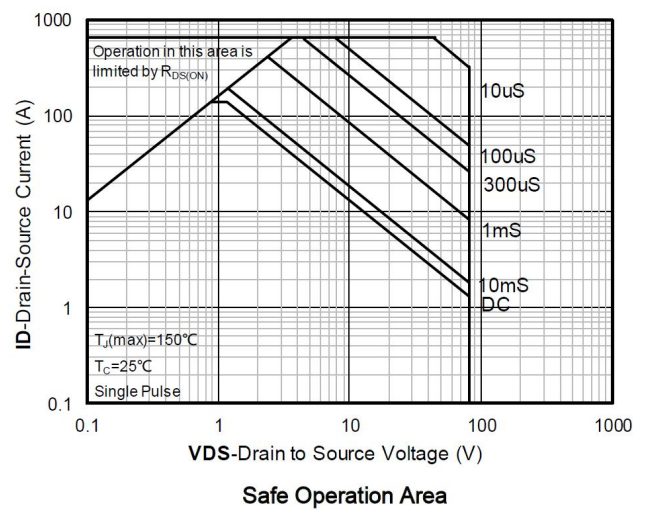
Normalized breakdown voltage



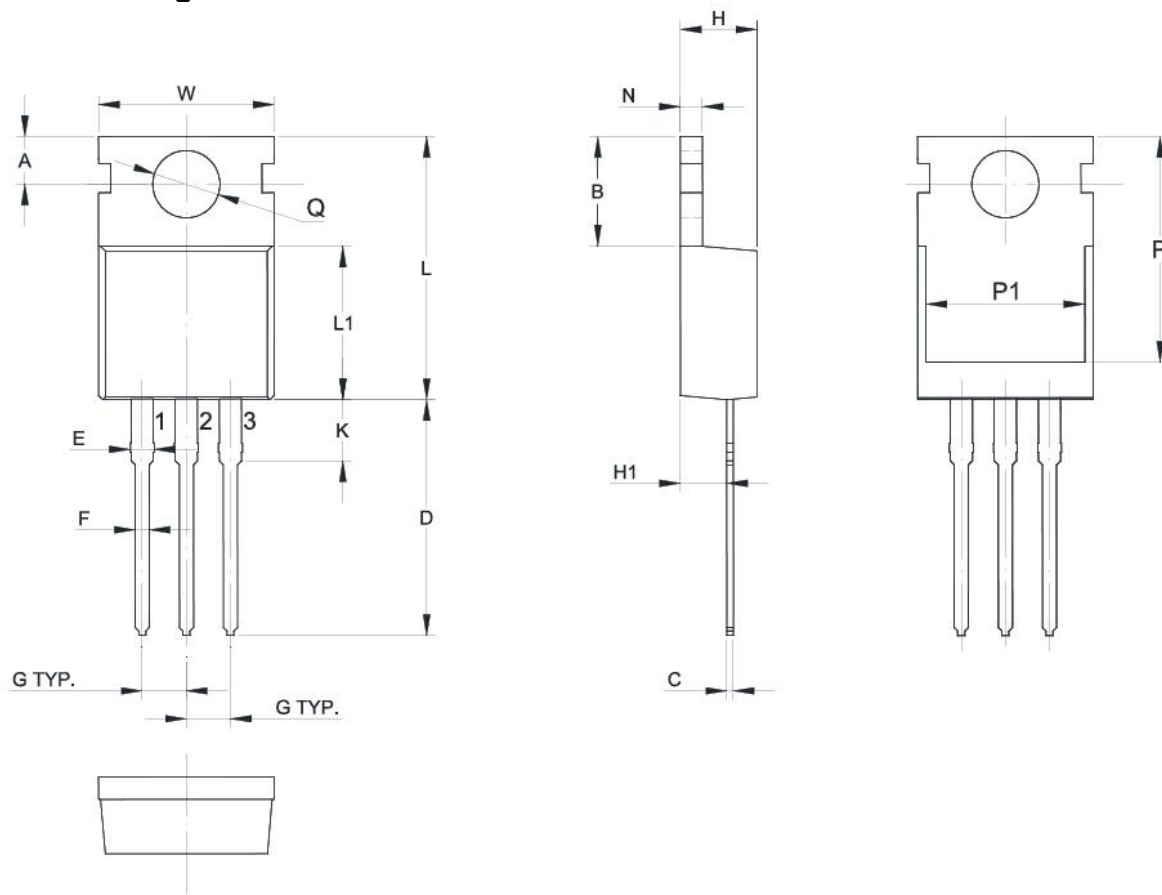
Normalized Threshold voltage



Maximum Transient Thermal Impedance



Safe Operation Area

TO-220-3L Package Information


Symbol	Dimensions In Millimeters	
	Min.	Max.
A	2.700	2.900
B	6.400	6.800
C	0.300	0.700
D	11	15
E	1.1	1.5
F	0.7	0.9
G	2.54TYP	
W	9.8	10.2
H	4.3	4.7
H1	2.2	2.5
K	2.7	3.1
L	14.8	16.8
L1	9.0	9.4
N	1.2	1.4
P	12.7	13.3
P1	7.6	8.2
Q	3.5	3.7