Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	17mΩ@10V	50A

合肥矽普半导体
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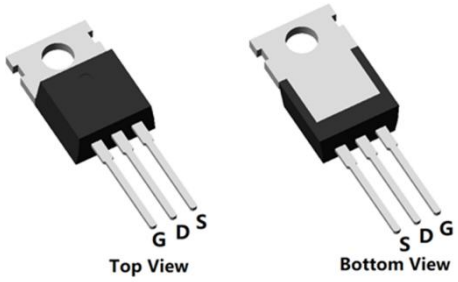
Feature

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

Applications

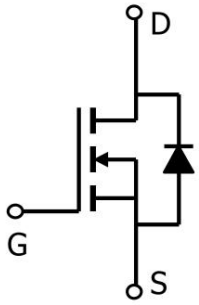
- DC-DC Converter
- Ideal for high-frequency switching and synchronous rectification

Package

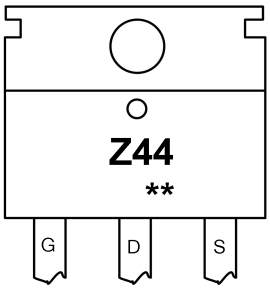


TO-220-3L(1:G 2:D 3:S)

Circuit diagram



Marking



Z44 :Device Code
**** :Week Code

Order Information

Device	Package	Unit/Tape
SPZ44TQ	TO-220-3L	50

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

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±25	V
Continuous Drain Current (T_C=25℃)	I_D	50	A
Continuous Drain Current (T_C=100℃)	I_D	33.3	A
Pulsed Drain Current	I_{DM}	200	A
Single Pulse Avalanche Energy[1]	E_{AS}	1280	mJ
Power Dissipation (T_C=25℃)	P_D	94	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	1.33	℃/W
Storage Temperature Range	T_{STG}	-55 to 150	℃
Operating Junction Temperature Range	T_J	-55 to 150	℃

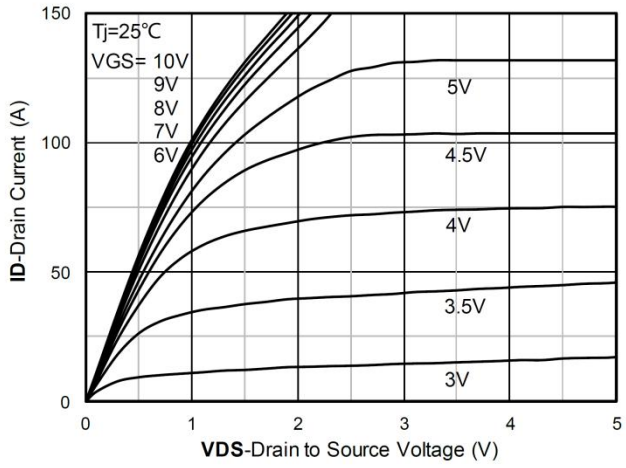
Electrical characteristics (Ta=25℃, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	VGS=0V , ID=250uA	60	-	-	V
Drain-Source Leakage Current	I_{DSS}	VDS=48V , VGS=0V , TJ=25℃	-	-	25	uA
Gate-Source Leakage Current	I_{GSS}	VGS=±25V , VDS=0V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	VGS=VDS , ID =250uA	2	3	4	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	VGS=10V , ID=25A	-	17	22	mΩ
Dynamic characteristics						
Input Capacitance	C_{iss}	VDS=25V , VGS=0V , f=1MHz	-	1476	-	pF
Output Capacitance	C_{oss}		-	354	-	
Reverse Transfer Capacitance	C_{rss}		-	90	-	
Total Gate Charge	Q_g	VDS=44V , VGS=10V , ID=25A	-	36	-	nC
Gate-Source Charge	Q_{gs}		-	5	-	
Gate-Drain Charge	Q_{gd}		-	9	-	
Switching Characteristics						
Turn-On Delay Time	$T_{d(on)}$	VDD=28V VGS=10V , RG=12Ω, ID=25A	-	12	-	nS
Rise Time	T_r		-	60	-	
Turn-Off Delay Time	$T_{d(off)}$		-	44	-	
Fall Time	T_f		-	45	-	
Diode Characteristics						
Diode Forward Voltage	V_{SD}	VGS=0V , IS=1A , TJ=25℃	-	-	1.2	V
Maximum Body-Diode Continuous Current	I_S		-	-	50	A
Reverse Recovery Time	T_{rr}	I_S=25A, di/dt=100A/us, TJ=25℃	-	65	-	nS
Reverse Recovery Charge	Q_{rr}		-	175	-	nC

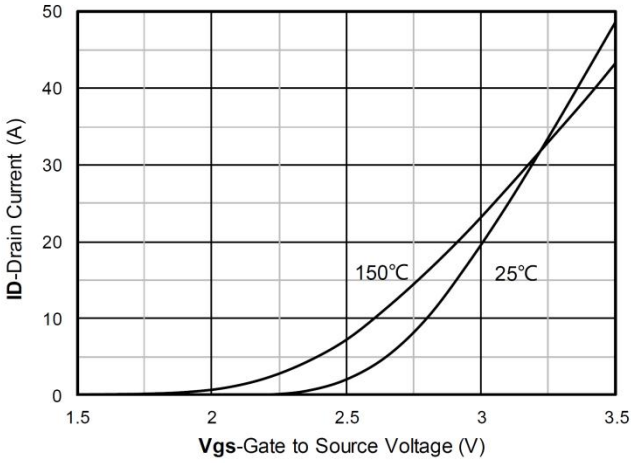
Note :

1. The EAS test condition is VDD=30V,VGS=10V,L=10mH,RG=25Ω

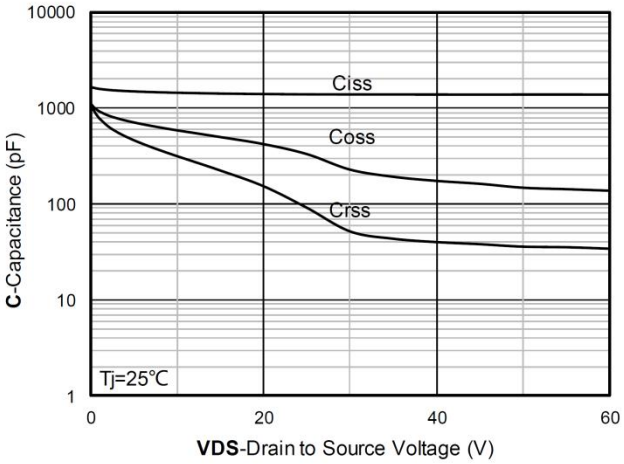
Typical Characteristics



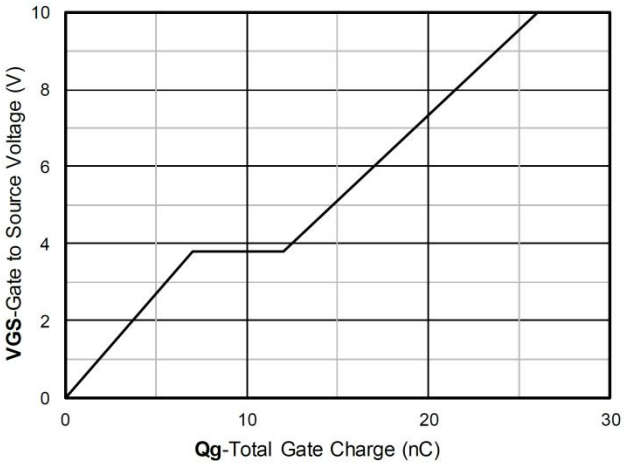
Output Characteristics



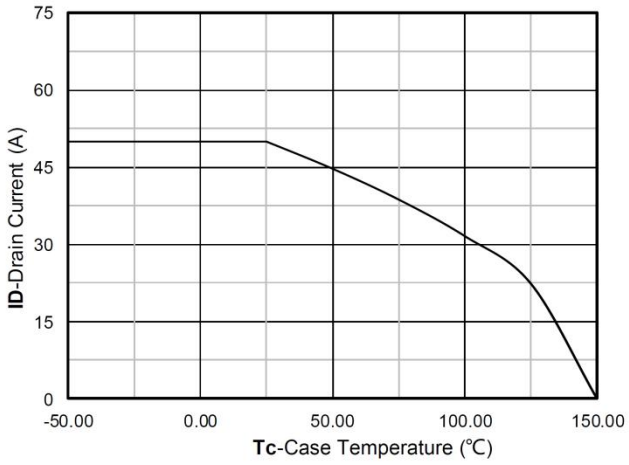
Transfer Characteristics



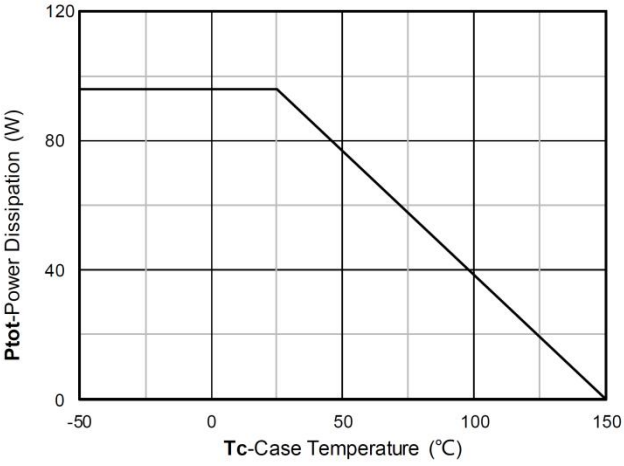
Capacitance Characteristics



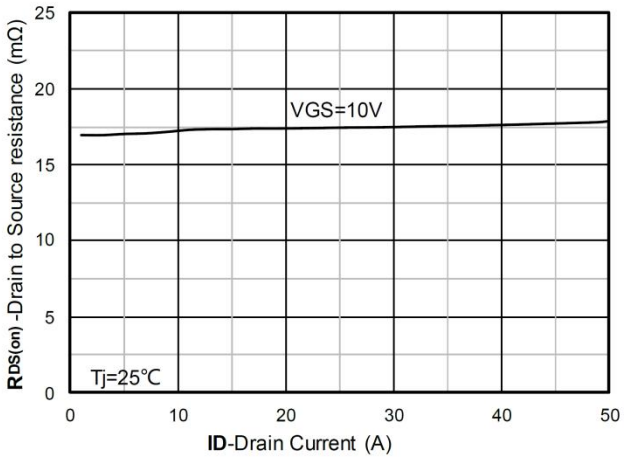
Gate Charge



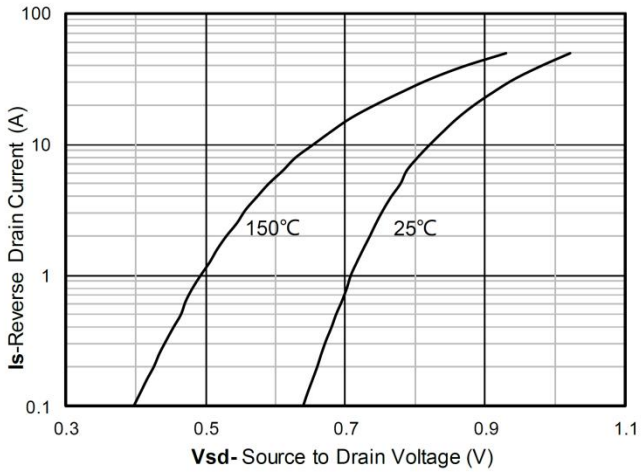
Current dissipation



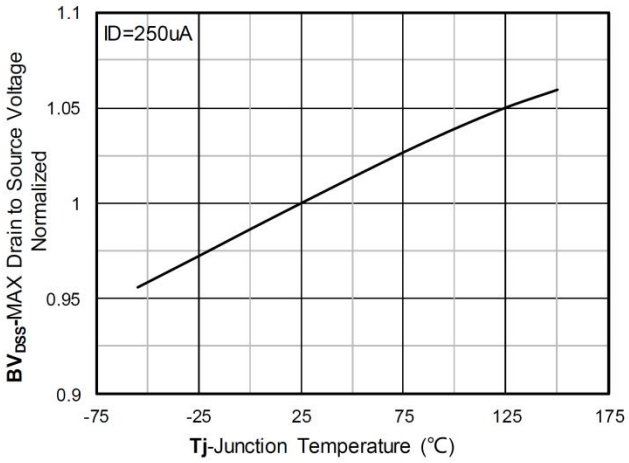
Power dissipation



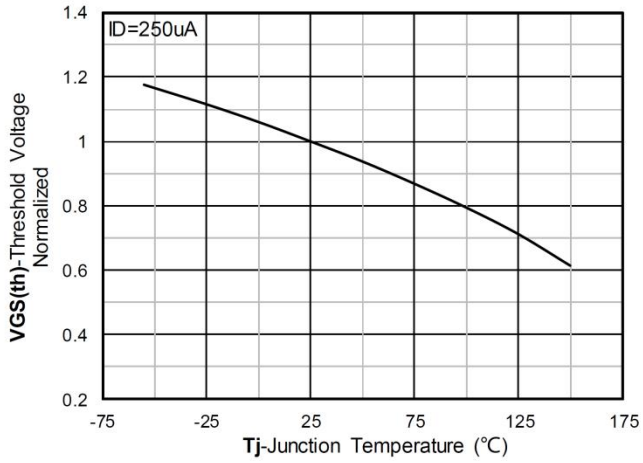
RDS(on) VS Drain Current



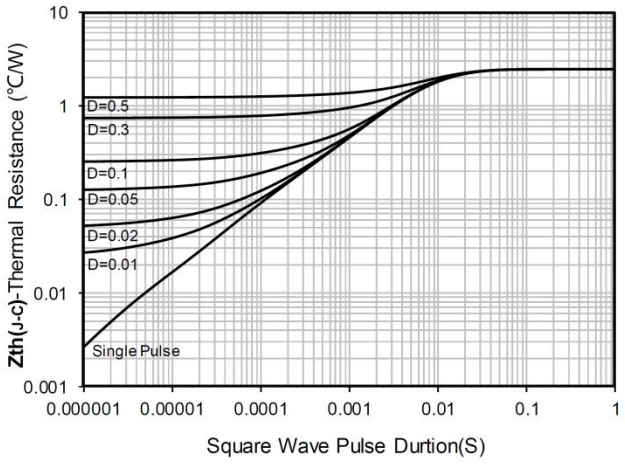
Forward characteristics of reverse diode



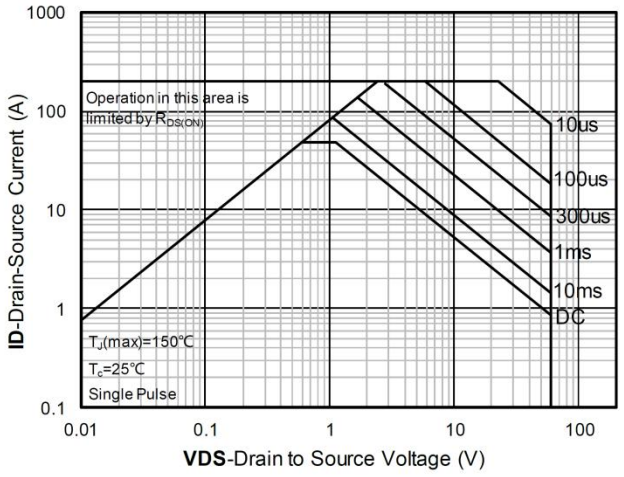
Normalized breakdown voltage



Normalized Threshold voltage

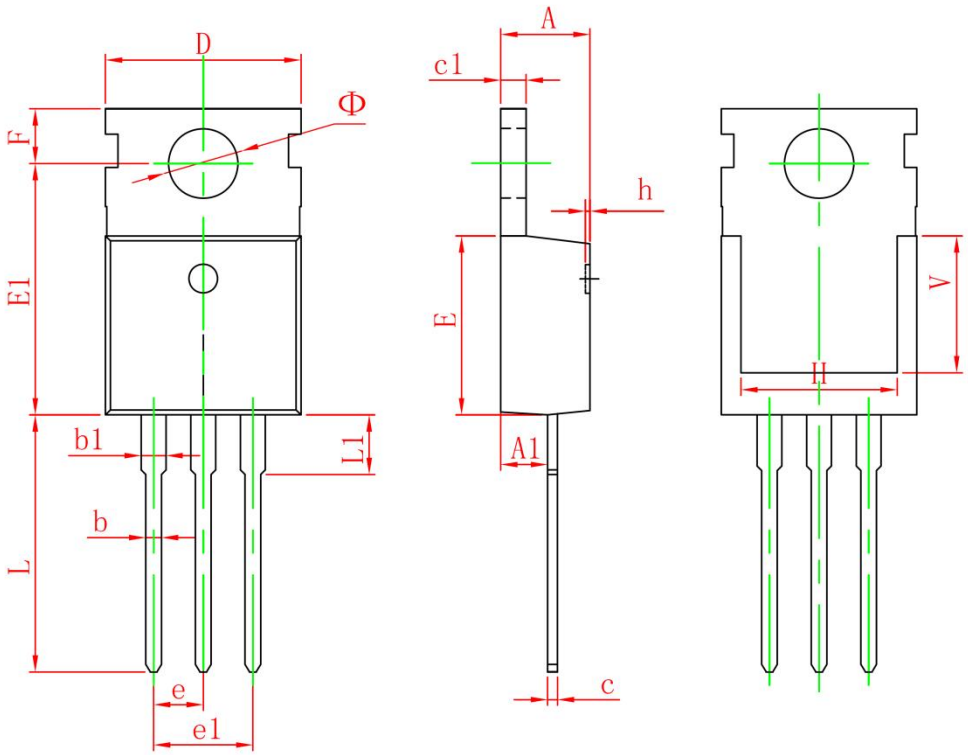


Maximum Transient Thermal Impedance



Safe Operation Area

TO-220-3L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.400	4.600	0.173	0.181
A1	2.250	2.550	0.089	0.100
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.330	0.650	0.013	0.026
c1	1.200	1.400	0.047	0.055
D	9.910	10.250	0.390	0.404
E	8.950	9.750	0.352	0.384
E1	12.650	13.050	0.498	0.514
e	2.540 TYP.		0.100 TYP.	
e1	4.980	5.180	0.196	0.204
F	2.650	2.950	0.104	0.116
H	7.900	8.100	0.311	0.319
h	0.000	0.300	0.000	0.012
L	12.900	13.400	0.508	0.528
L1	2.850	3.250	0.112	0.128
V	6.900 REF.		0.276 REF.	
Φ	3.400	3.800	0.134	0.150