

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-100V	70mΩ@-10V	-20A
	85mΩ@-4.5V	



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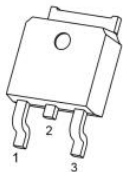
Feature

- Advanced trench process technology
- Super high dense cell design

Applications

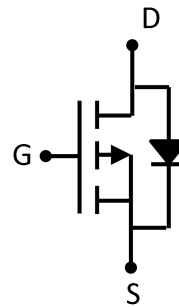
- Motor control
- Power management
- DC/DC convertor

Package

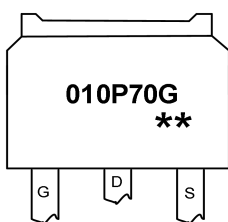


TO-252(1:G 2:D 3:S)

Circuit diagram



Marking



010P70G =Device Code
** =Week Code

Order Information

Device	Package	Unite/Tape
SP010P70GTH	TO-252	2500

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

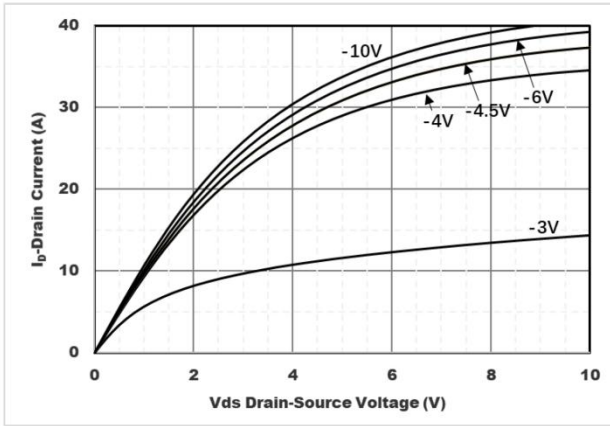
Parameter	Symbol	Rating	Units
Drain-Source Voltage	V _{DS}	-100	V
Gate-Source Voltage	V _{GS}	±20	V
Drain Current-Continuous(Tc=25°C)	I _D	-20	A
Drain Current-Pulsed	I _{DM}	-80	A
Power Dissipation (Tc=25°C)	P _D	70	W
Thermal Resistance Junction to Case	R _{θJC}	1.78	°C/W
Storage Temperature Range	T _{STG}	-50 to 150	°C
Operating Junction Temperature Range	T _J	-50 to 150	°C

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

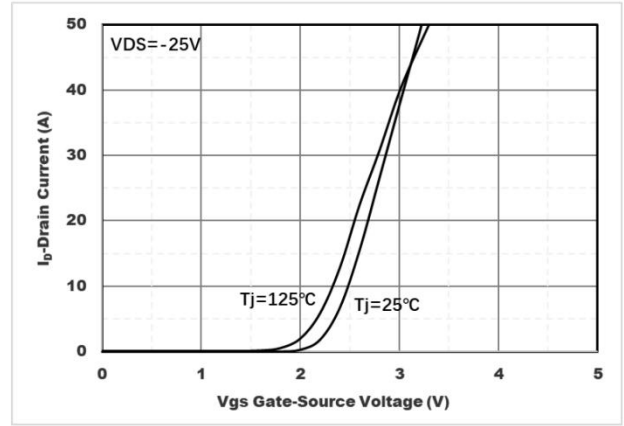
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	B _{VDS}	V _{GS} =0V , I _D =-250uA	-100	---	---	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-100V , V _{GS} =0V	---	---	-1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V , V _{DS} =0V	---	---	±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =-250uA	-1	-1.7	-2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-10V , I _D =-10A	---	70	88	mΩ
		V _{GS} =-4.5V , I _D =-5A	---	85	115	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-50V,V _{GS} =0V,f=1MHZ	---	1050	---	pF
Output Capacitance	C _{oss}		---	120	---	
Reverse Transfer Capacitance	C _{rss}		---	23	---	
Total Gate Charge	Q _g	V _{GS} =-10V,V _{DS} =-50V,I _D =-10A	---	20	---	nC
Gate-Source Charge	Q _{gs}		---	4	---	
Gate-Drain Charge	Q _{gd}		---	4.4	---	
Turn-On Delay Time	T _{d(on)}	V _{GS} =-10V,V _{DD} =-50V, I _D =-10A, R _{GEN} =9.1Ω	---	15	---	ns
Rise Time	T _r		---	30	---	
Turn-Off Delay Time	T _{d(off)}		---	73	---	
Fall Time	T _f		---	76	---	
Drain-Source Body Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V , I _S =-1A	---	---	-1.2	V



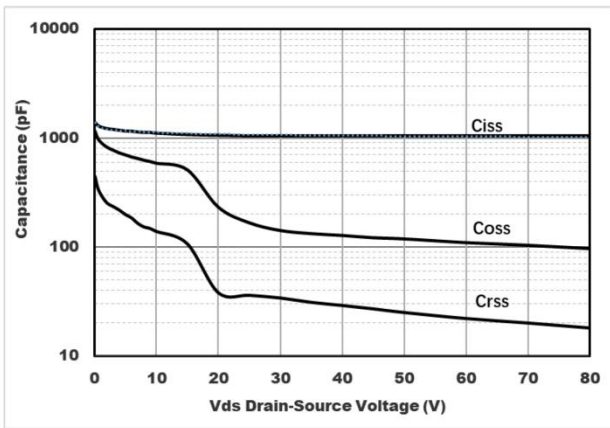
Typical Characteristics



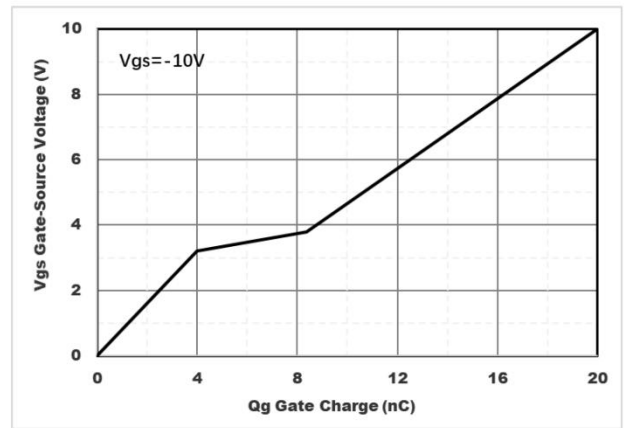
Output Characteristics



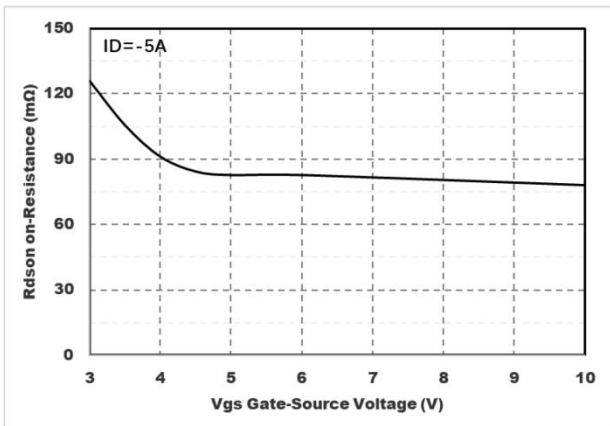
Transfer Characteristics



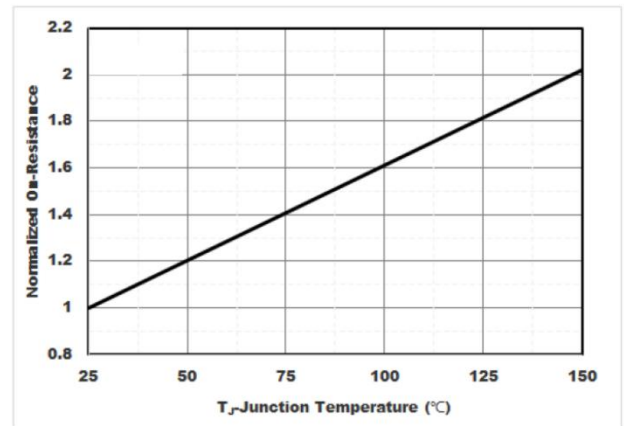
Capacitance Characteristics



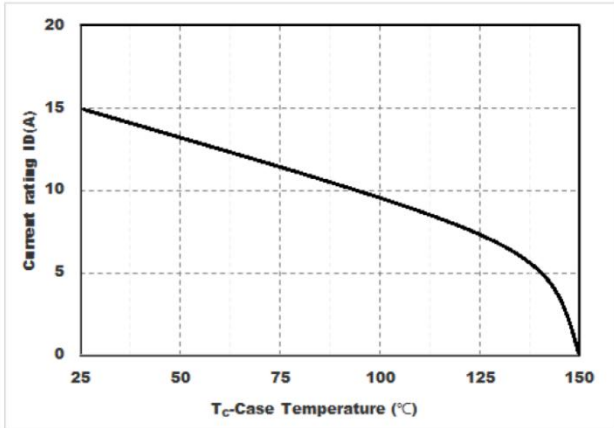
Gate Charge



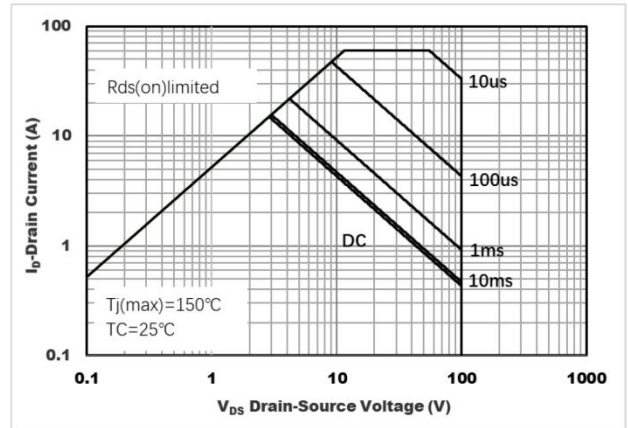
On-Resistance vs. Gate to Source Voltage



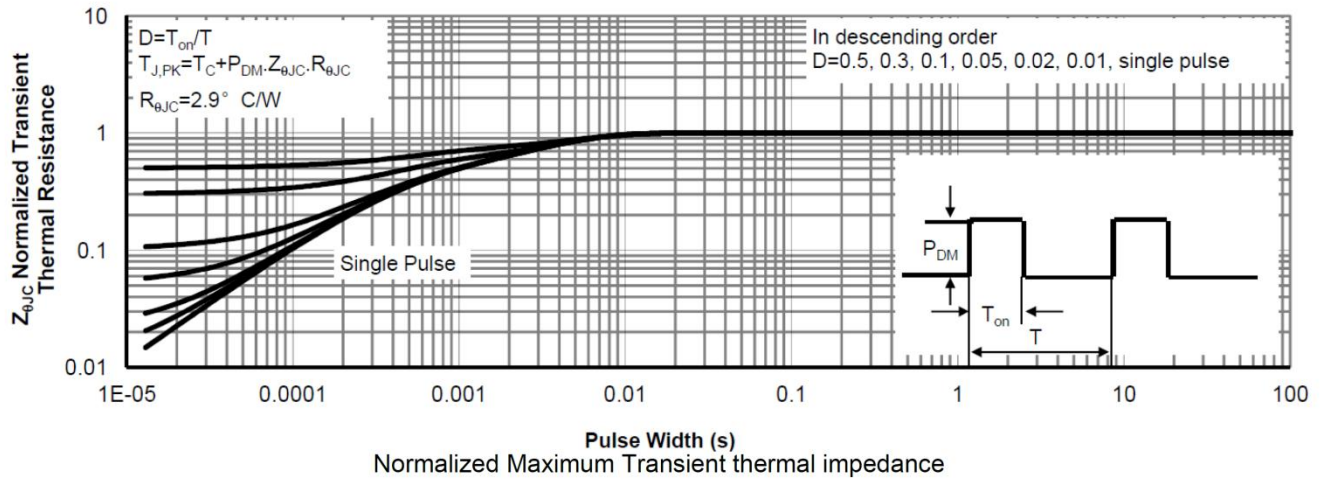
Normalized On-Resistance

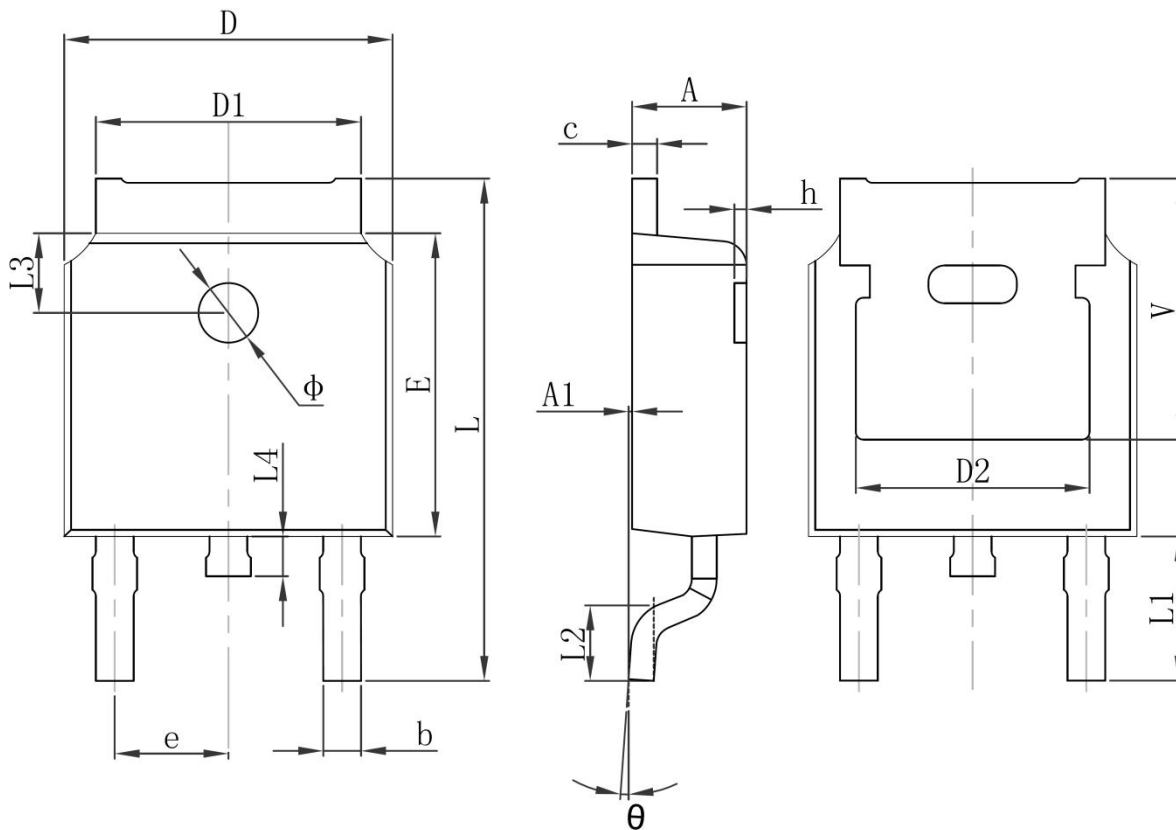


Drain current



Safe Operation Area



TO-252 Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 REF.		0.211 REF.	

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