

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	15mΩ@10V	40A
	18mΩ@4.5V	



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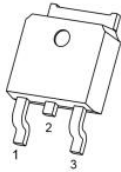
Feature

- Fast Switching
- Low Gate Charge and R_{DS(on)}
- Advanced Split Gate Trench Technology
- 100% Single Pulse avalanche energy Test

Applications

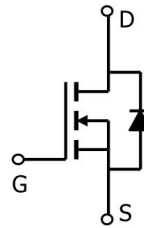
- Power switching application
- DC-DC Converter

Package

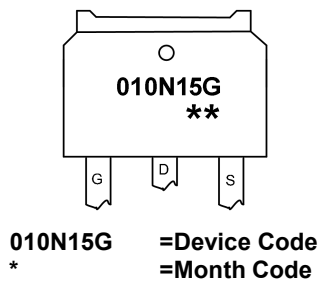


TO-252(1:G 2:D 3:S)

Circuit diagram



Marking



Order Information

Device	Package	Unite/Tape
SP010N15GTH	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
Continuous Drain Current (Tc=25°C)	I _D	40	A
Pulsed Drain Current ²	I _{DM}	160	A
Single Pulse Avalanche Energy ³	E _{AS}	110	mJ
Total Power Dissipation ⁴ (Tc=25°C)	P _D	72	W
Thermal Resistance Junction-Case ¹	R _{θJC}	1.74	°C/W
Storage Temperature Range	T _{STG}	-55 to 150	°C
Operating Junction Temperature Range	T _J	-55 to 150	°C

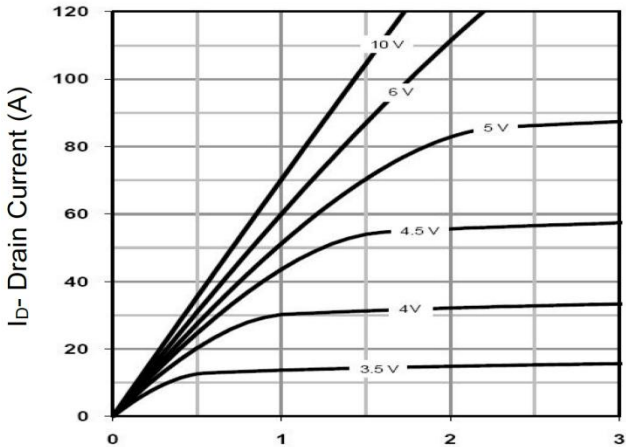
Electrical characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V, ID=250uA	100	---	---	V
Drain-Source Leakage Current	I _{DSS}	VDS=80V, VGS=0V, TJ=25°C	---	---	1	uA
Gate-Source Leakage Current	I _{GSS}	VGS=±20V, VDS=0V	---	---	±100	nA
Gate Threshold Voltage	V _{GS(th)}	VGS=VDS, ID=250uA	1.0	1.8	2.5	V
Static Drain-Source On-Resistance ²	R _{DS(ON)}	VGS=10V, ID=20A	---	15	19	mΩ
		VGS=4.5V, ID=10A	---	18	24	
Dynamic Characteristics						
Input Capacitance	C _{iss}	VDS=50V, VGS=0V, f=1MHz	---	1871	---	pF
Output Capacitance	C _{oss}		---	161	---	
Reverse Transfer Capacitance	C _{rss}		---	19	---	
Switching Characteristics						
Total Gate Charge	Q _g	VDS=50V, VGS=10V, ID=20A	---	33.5	---	nC
Gate-Source Charge	Q _{gs}		---	6.9	---	
Gate-Drain Charge	Q _{gd}		---	5.1	---	
Turn-On Delay Time	T _{d(on)}	VDD=50V, VGS=10V, RG=3Ω, ID=20A	---	15	---	ns
Rise Time	T _r		---	18	---	
Turn-Off Delay Time	T _{d(off)}		---	30	---	
Fall Time	T _f		---	9	---	
Source-Drain Diode Characteristics						
Diode Forward Voltage ²	V _{SD}	VGS=0V, IS=1A, TJ=25°C	---	---	1.2	V

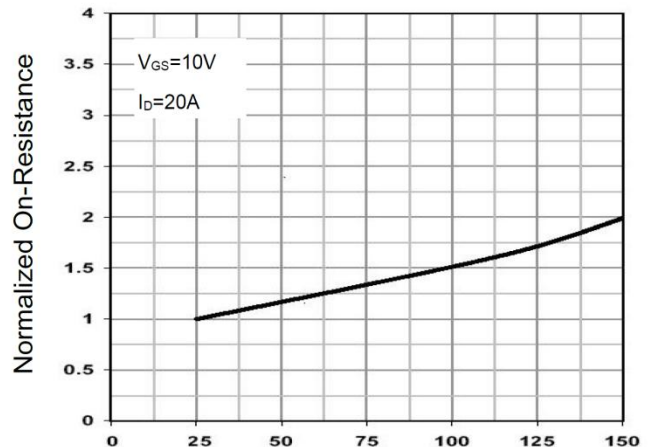
Note :

1. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
2. The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%
3. The EAS data shows Max. rating. The test condition is VDD=50V, VGS=10V, L=0.5mH
4. The power dissipation is limited by 150°C junction temperature

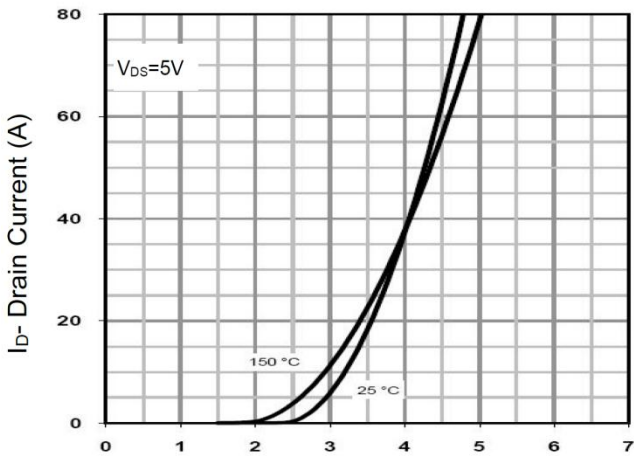
Typical Characteristics



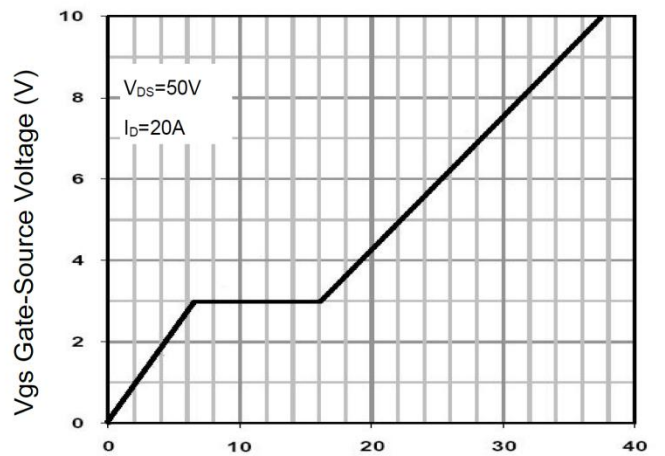
Output Characteristics
 V_{DS} Drain-Source Voltage (V)



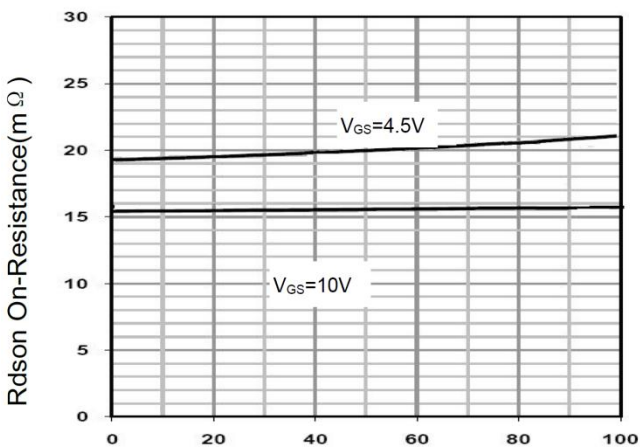
$R_{DS(on)}$ -Junction Temperature
 T_J -Junction Temperature(°C)



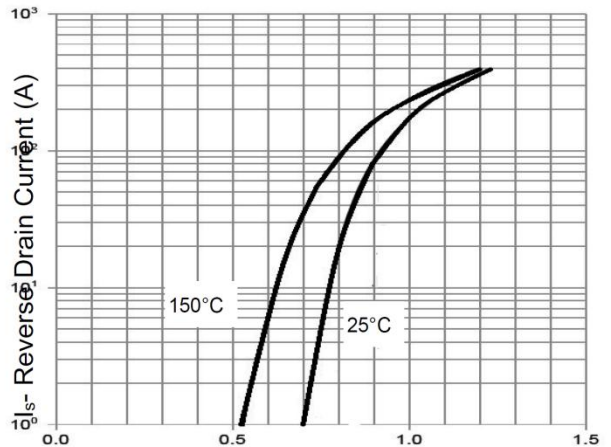
Transfer Characteristics
 V_{GS} Gate-Source Voltage (V)



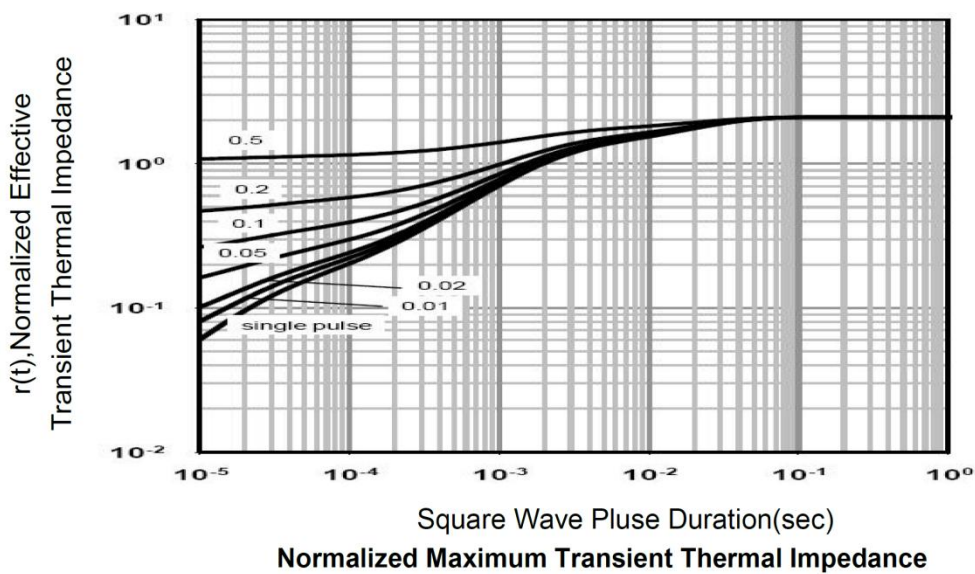
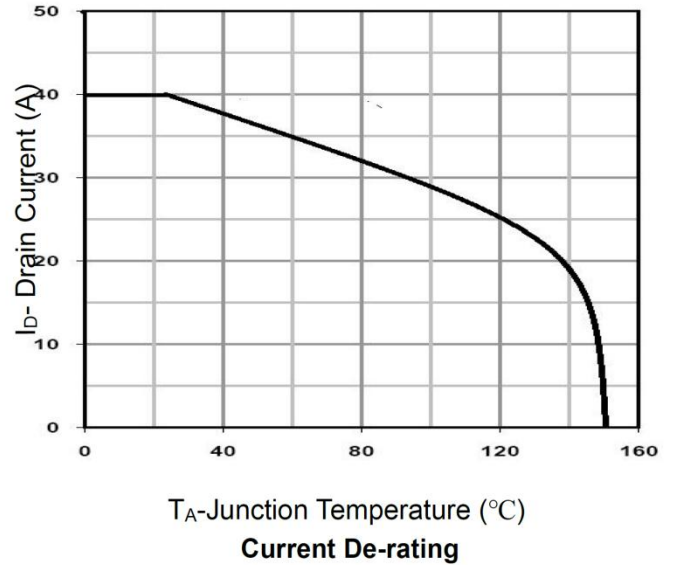
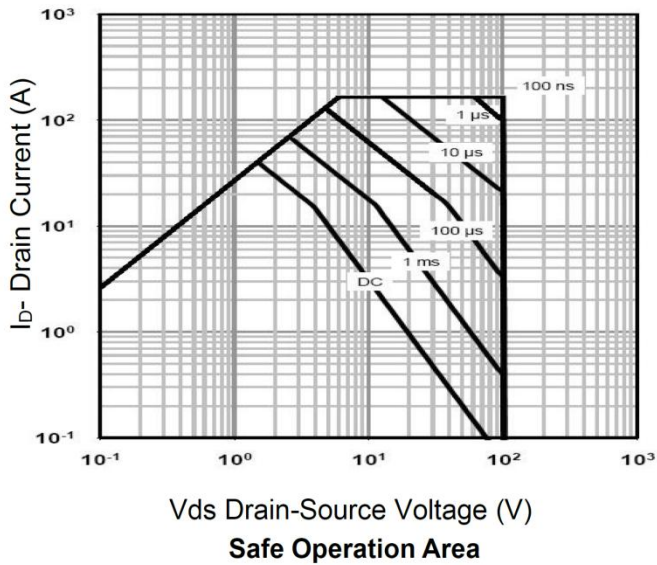
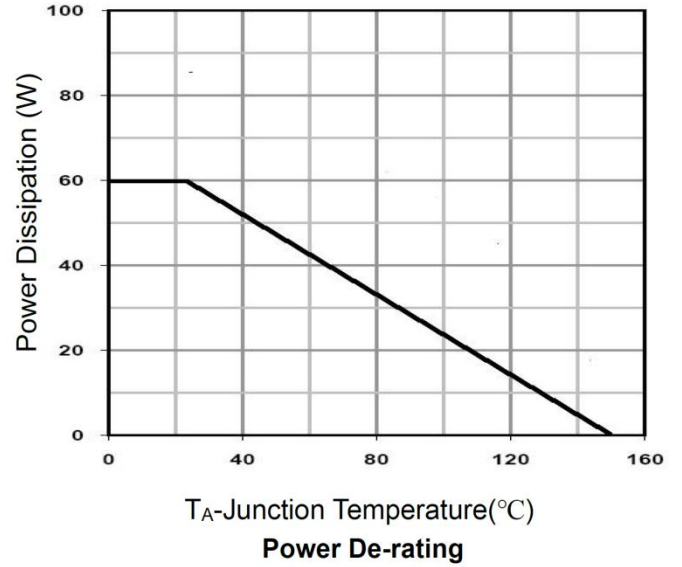
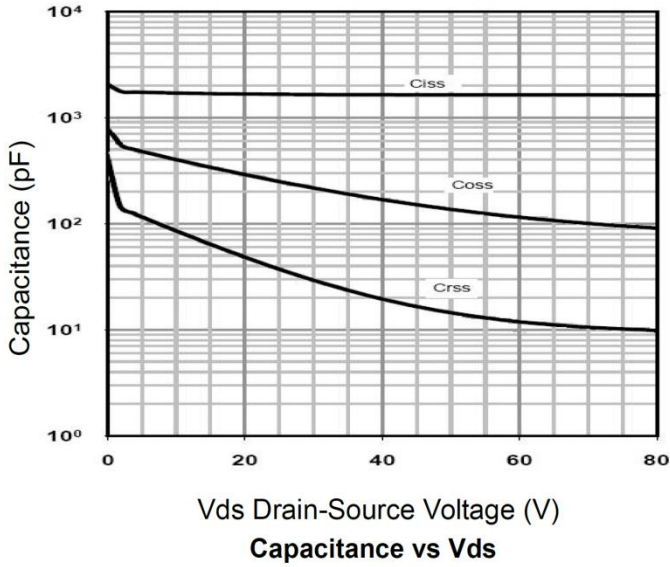
Gate Charge
 Q_g Gate Charge (nC)



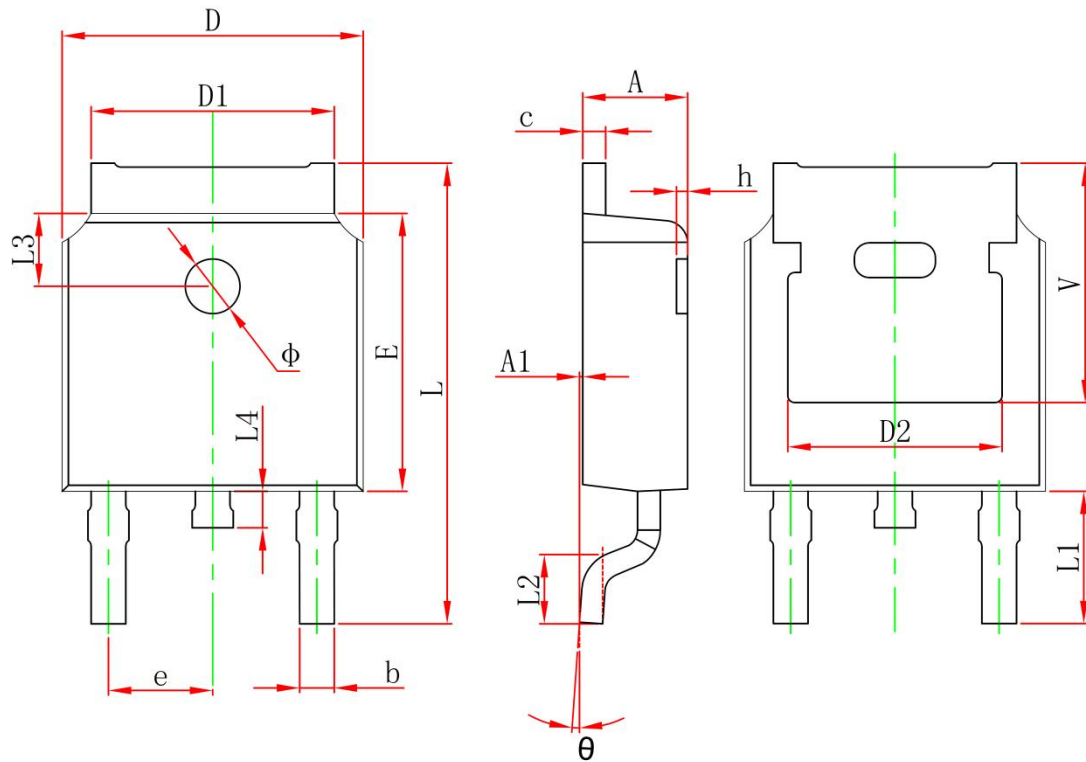
$R_{DS(on)}$ - Drain Current
 I_D - Drain Current



Source- Drain Diode Forward
 V_{SD} Source-Drain Voltage (V)



TO-252-2L 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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