

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	5.8mΩ@10V	90A
	8.8mΩ@4.5V	



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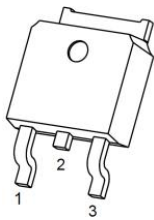
Feature

- Fast Switching
- Low Gate Charge and R_{ds(on)}
- Low Reverse transfer capacitances
- 100% Single Pulse avalanche energy Test

Applications

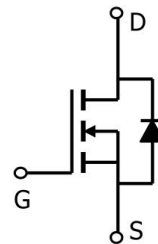
- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

Package

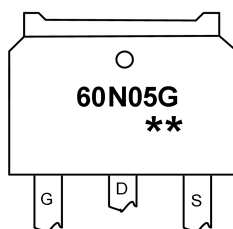


TO-252-2L(G:1 D:2 S:3)

Circuit diagram



Marking



60N05G : Product code
 ** : Week code.

Order Information

Device	Package	Unite/Tape
SP60N05GTH	TO-252	2500

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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V _{DSS}	60	V
Gate-Source Voltage	V _{GSS}	±20	V
Continuous Drain Current(Tc=25°C)	I _D	90	A
Pulse Drain Current Tested	I _{DM}	360	A
Single Pulse Avalanche Energy ¹	E _{AS}	289	mJ
Maximum Power Dissipation(Tc=25°C)	P _D	90	W
Thermal Resistance-Junction to Case	R _{θJC}	1.38	°C/W
Maximum Junction Temperature	T _J	-55 to 150	°C
Storage Temperature Range	T _{STG}	-55 to 150	°C

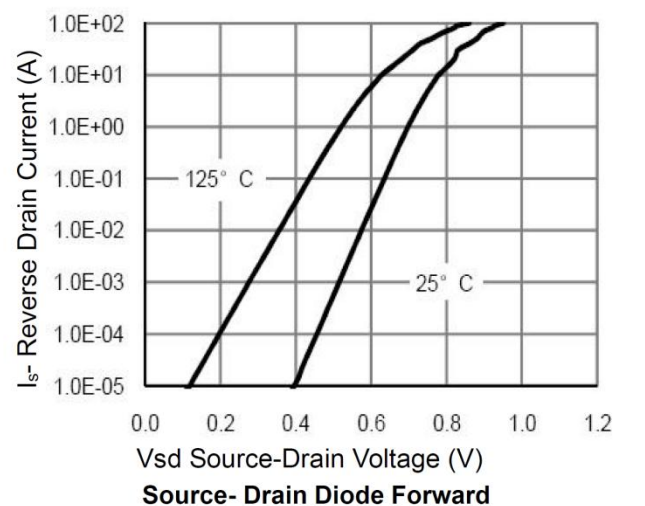
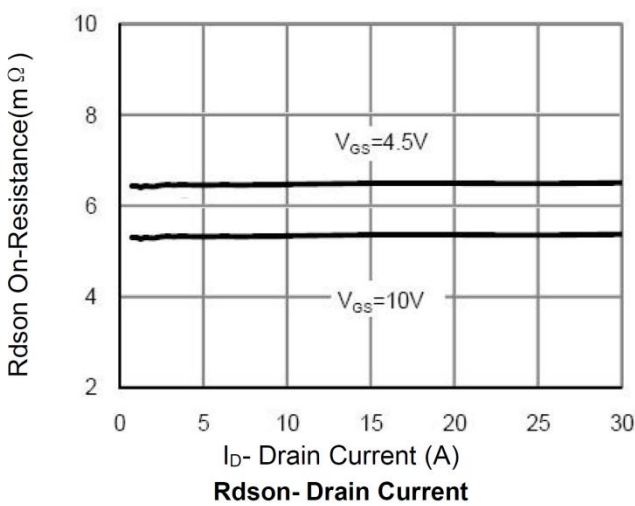
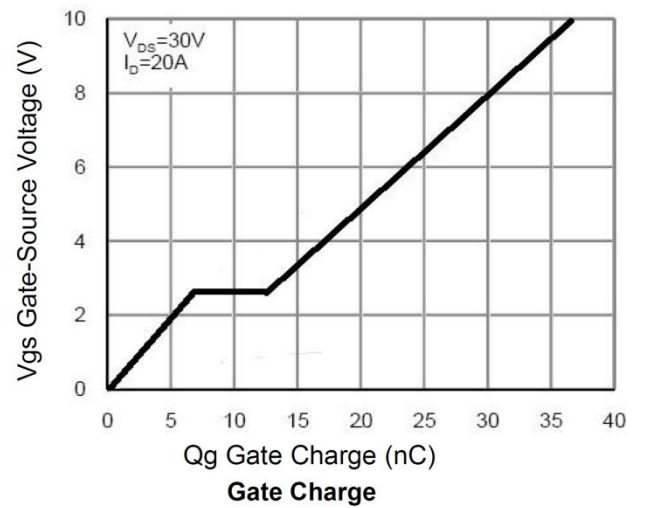
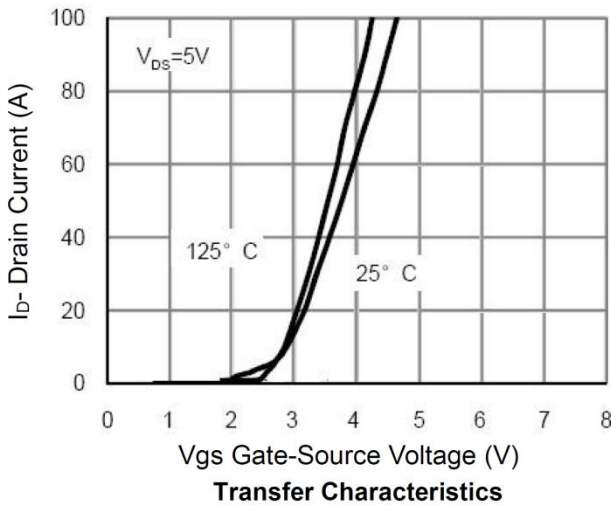
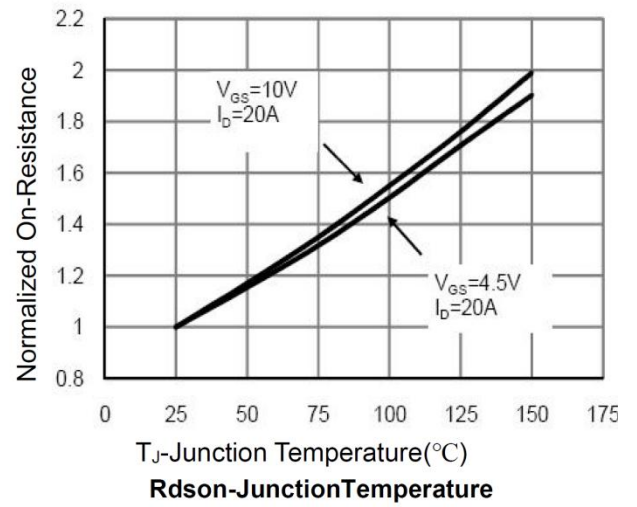
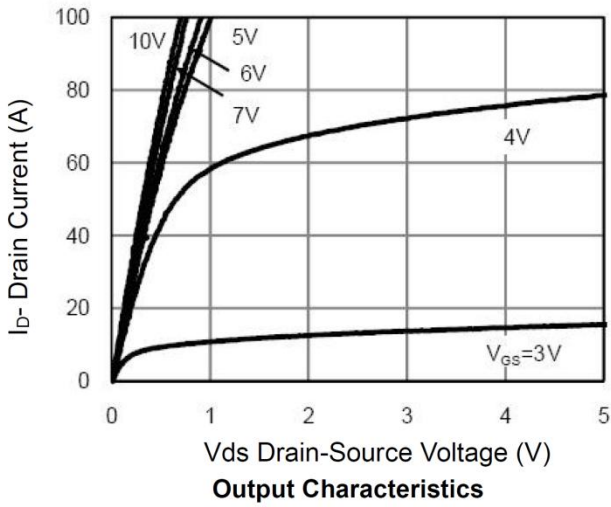
Electrical characteristics (Ta=25°C, unless otherwise noted)

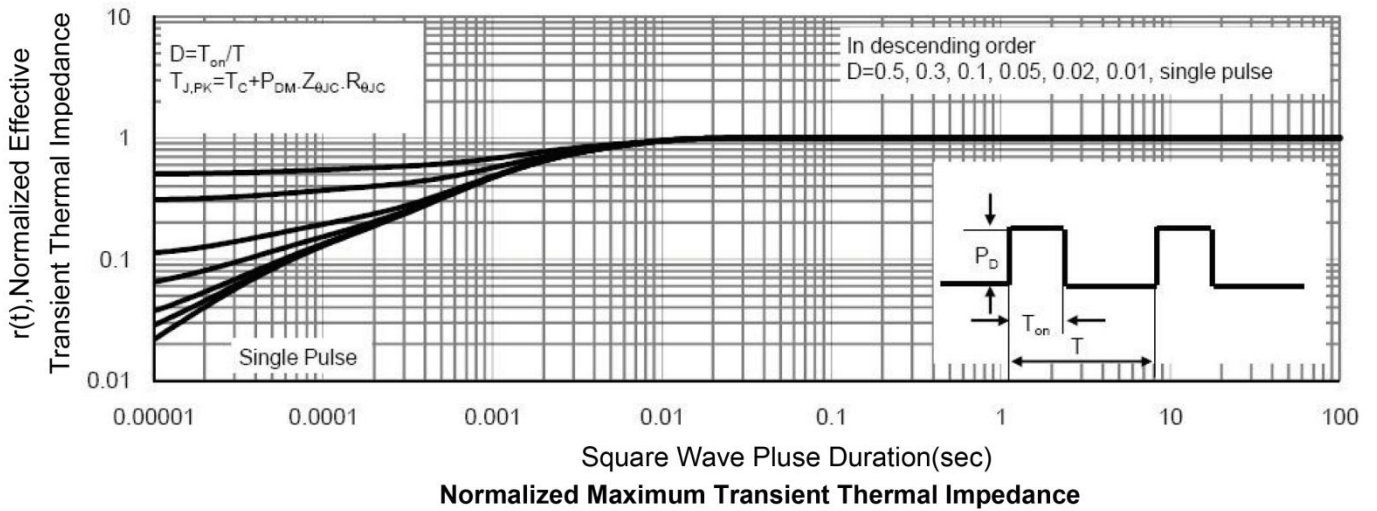
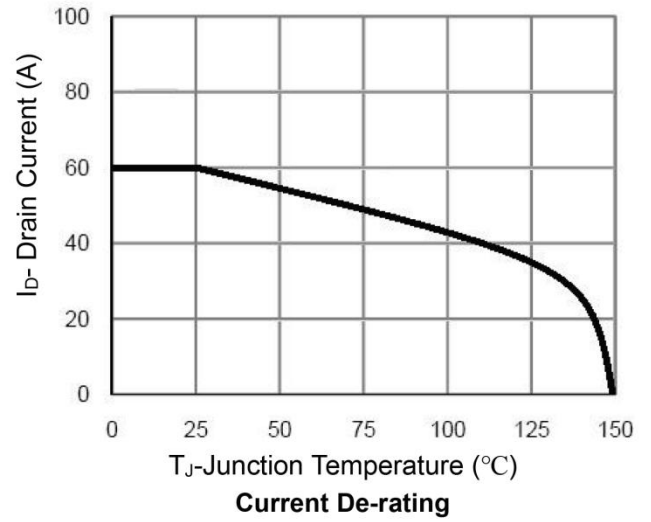
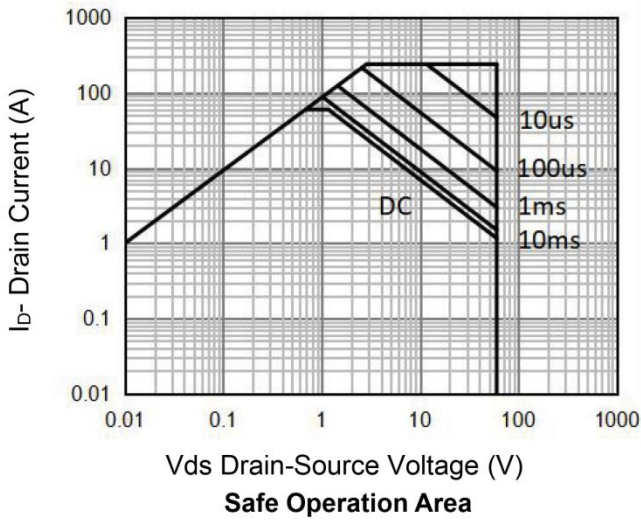
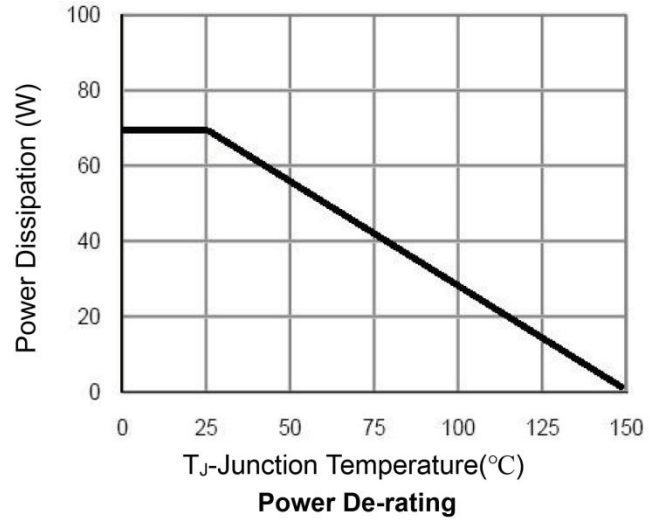
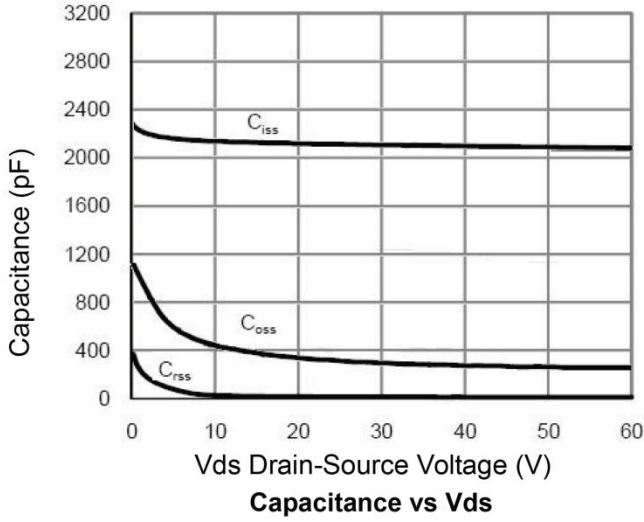
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Electrical Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V, ID=250mA	60	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	VDS=48V, VGS=0V	-	-	1	uA
Gate Leakage Current	I _{GSS}	VGS=±20V, VDS=0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	VDS=VGS, ID=250uA	1.0	2.0	3.0	V
Drain-Source On-state Resistance	R _{DS(ON)}	VGS=10V, ID=20A	-	5.8	7.3	mΩ
		VGS=4.5V, ID=10A	-	8.8	11.8	
Dynamic and Switching Characteristics						
Input Capacitance	C _{iss}	VGS=0V, VDS=30V, F=1MHz	-	2083	-	pF
Output Capacitance	C _{oss}		-	793	-	
Reverse Transfer Capacitance	C _{rss}		-	16	-	
Total Gate Charge	Q _g	VDS=30V, VGS=10V, ID=20A	-	37.5	-	nC
Gate-Source Charge	Q _{gs}		-	6.5	-	
Gate-Drain Charge	Q _{gd}		-	10	-	
Turn-on Delay Time	t _{d(ON)}	VDD=30V, ID=20A, VGS=10V, RG=4.7Ω	-	9	-	nS
Turn-on Rise Time	t _r		-	3.5	-	
Turn-off Delay Time	t _{d(OFF)}		-	32	-	
Turn-off Fall Time	t _f		-	5.5	-	
Source-Drain Characteristics						
Diode Forward Voltage	V _{SD}	IS=1A, VGS=0V	-	-	1.2	V

Note :

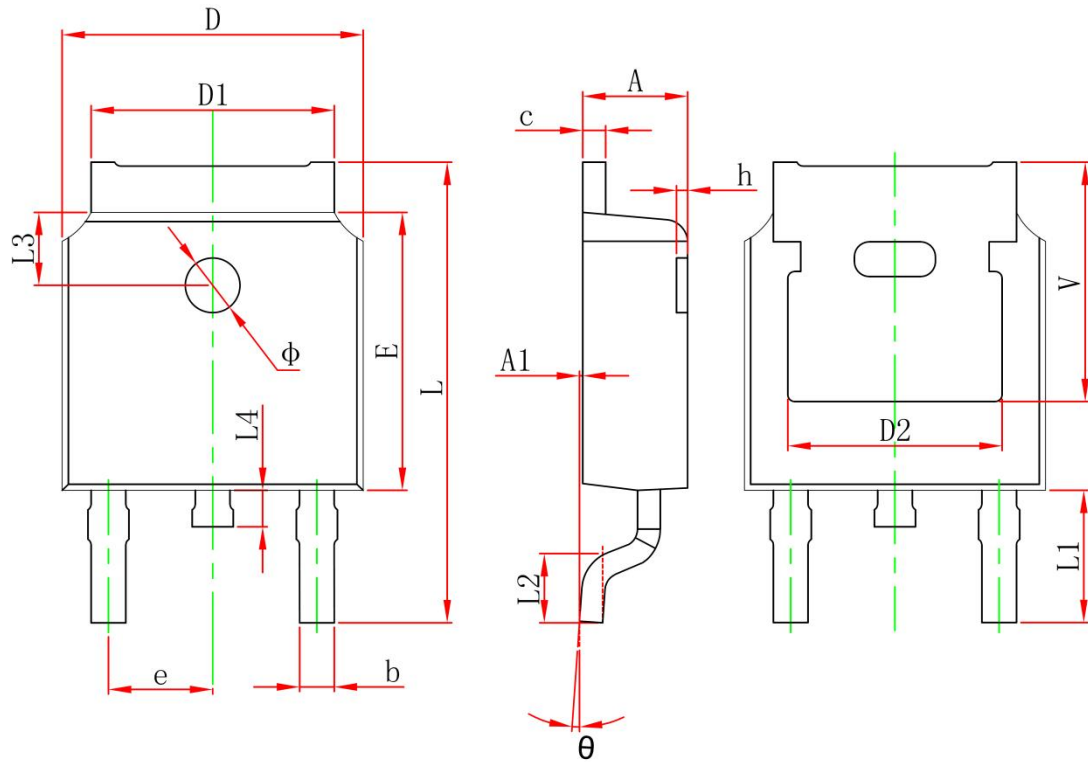
- The EAS data shows Max. rating . The test condition is VDD=30V, VGS=10V, L=0.5mH, RG=25Ω

Typical Characteristics





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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