Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	3.7mΩ@10V	110A

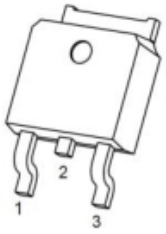
Feature

- Fast Switching
- Low Gate Charge and Rdson
- Advanced Split Gate Trench Technology
- 100% Single Pulse avalanche energy Test

Applications

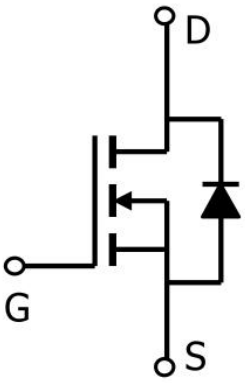
- DC-DC Converters
- Power Management

Package

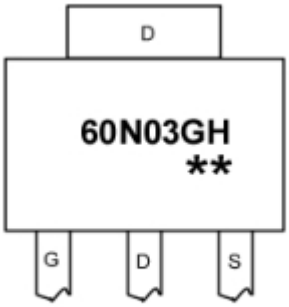


TO-252-2L(G:1 D:2 S:3)

Circuit diagram



Marking



60N03GH =Device Code
** =Week Code

Absolute maximum ratings

(T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current1 (Tc=25℃)	I_D	110	A
Pulsed Drain Current[2]	I_{DM}	440	A
Single Pulse Avalanche Energy[3]	E_{AS}	756	mJ
Total Power Dissipation[4] (Tc=25℃)	P_D	110	W
Thermal Resistance Junction-Case[1]	$R_{\theta JC}$	1.13	℃/ W
Storage Temperature Range	T_{STG}	-55~ +150	℃
Operating Junction Temperature Range	T_J	-55~ +150	℃

Electrical characteristics

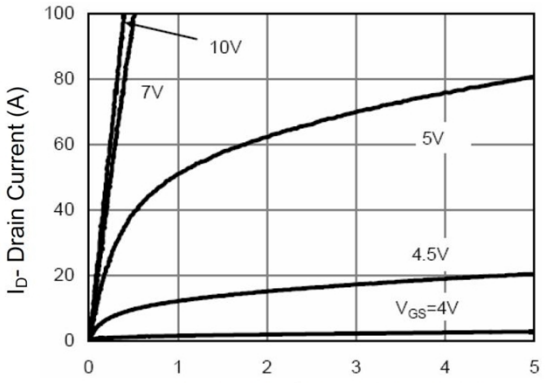
(T_A=25℃, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	$BV_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	60			V
Drain-Source Leakage Current	I_{DSS}	V_{DS} =48V,V_{GS} = 0V			1	uA
Gate-Body Leakage Current	I_{GSS}	V_{GS} =±20V, V_{DS} =0V			±100	uA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2.0	2.5	4.0	V
Static Drain-Source On-Resistance[2]	$R_{DS(on)}$	V_{GS} =10V, I_D =20A		3.7	4.7	mΩ
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=30V, V_{GS}=0V, f=1MHz		4250		pF
Output Capacitance	C_{oss}			975		
Reverse Transfer Capacitance	C_{rss}			41		
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS}=30V , V_{GS}=10V, I_D =20A		68		pF
Gate-Source Charge	Q_{gs}			19		
Gate-Drain Charge	Q_{gd}			14		
Turn-on Delay Time	$T_{d(on)}$	V_{DD}=30V, V_{GS}=10V, R_G =4.7Ω, I_D =20A		6		nS
Turn-on Rise Time	T_r			12		
Turn-off Delay Time	$T_{d(off)}$			24		
Turn-off Fall Time	T_f			5		
Diode Characteristics						
Body Diode Voltage[2]	V_{SD}	V_{GS}=0V ,I_S=1A,T_J=25℃			1.2	V

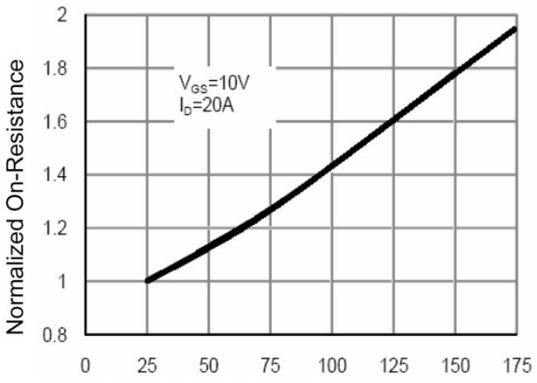
Note :

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 V_{DD}=30V,V_{GS}=10V,L=0.5mH,R_G=25Ω
4. The power dissipation is limited by 150℃ junction temperature
5. The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation.

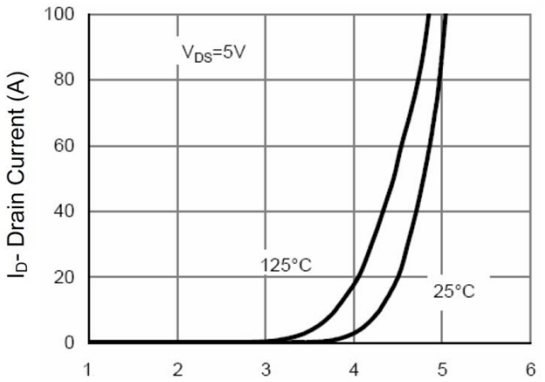
Typical Characteristics



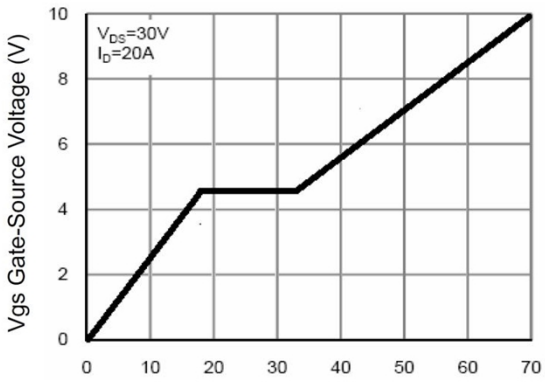
Output Characteristics



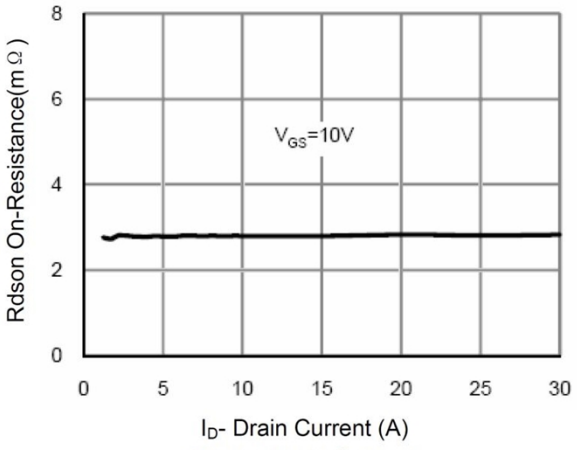
Rdson-Junction Temperature



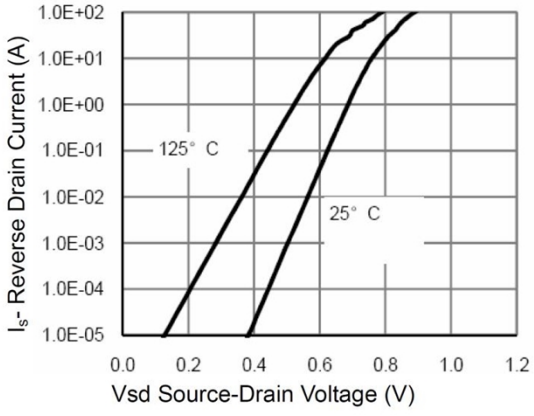
Transfer Characteristics



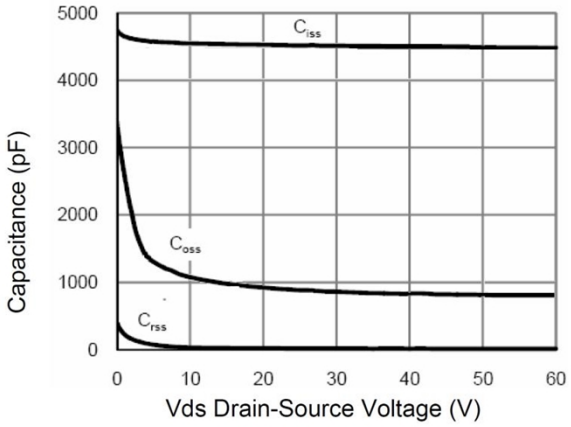
Gate Charge



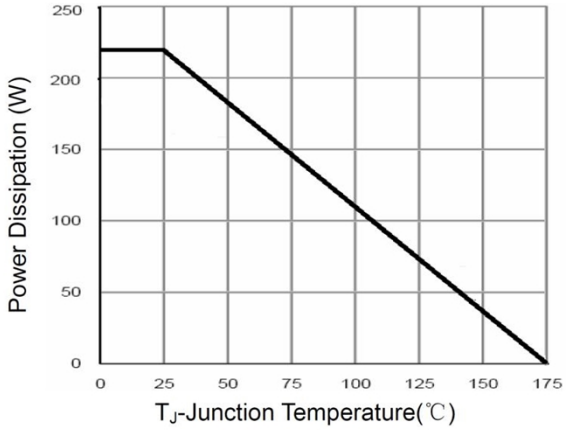
Rdson- Drain Current



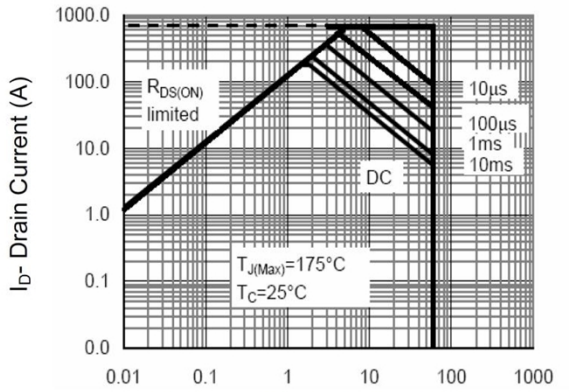
Source- Drain Diode Forward



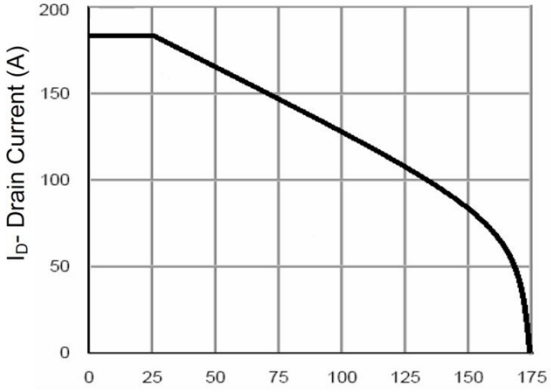
Capacitance vs Vds



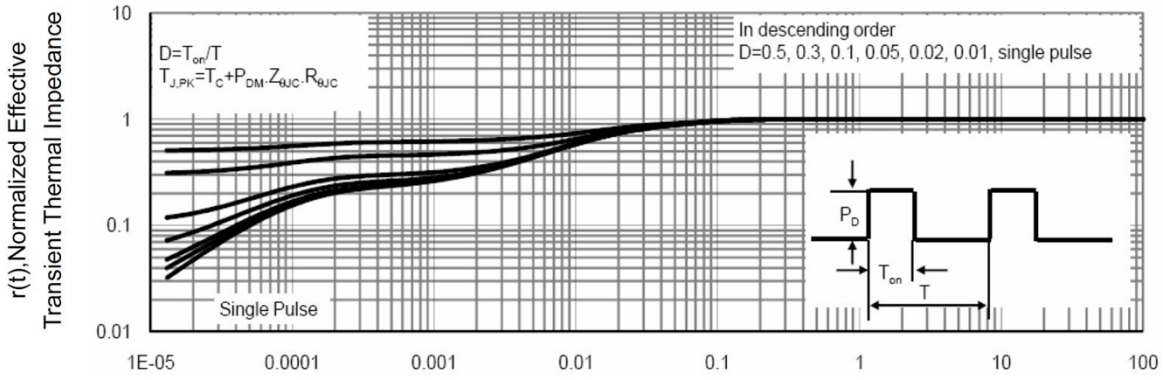
Power De-rating



Safe Operation Area

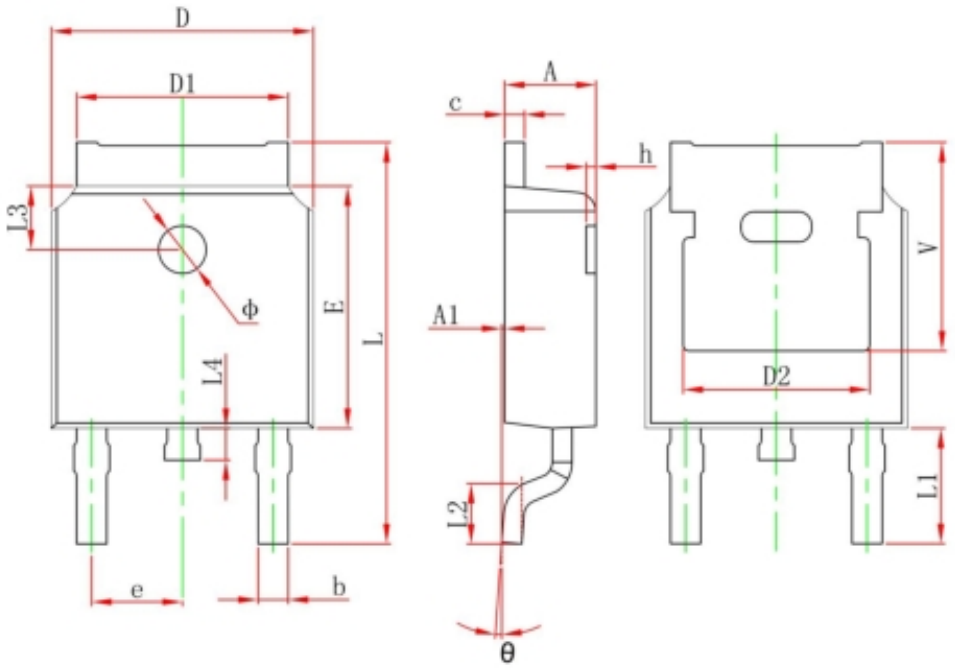


Current De-rating



Normalized Maximum Transient Thermal Impedance

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.	