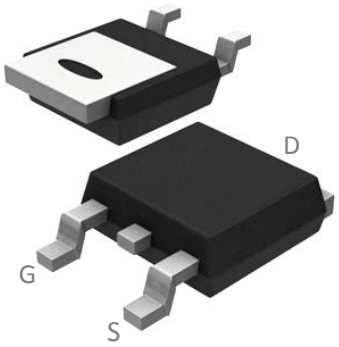
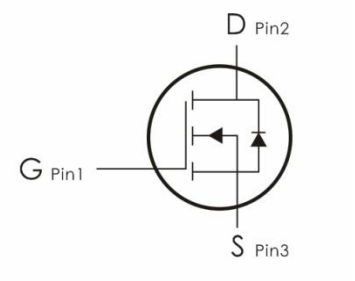
Description：

This N-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.





Features：

1) V_{DS}=20V,I_D=60A,$R_{DS(ON)}$<6.5mΩ @V_{GS}=4.5V
2) Low gate charge.
3) Green device available.
4) Advanced high cell denity trench technology for ultra low $R_{DS(ON)}$.
5) Excellent package for good heat dissipation.

Absolute Maximum Ratings： (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	±12	V
I_D	Continuous Drain Current-T_C=25℃	60	A
	Continuous Drain Current-T_C=100℃	39	A
I_{DM}	Pulsed Drain Current[1]	240	A
P_D	Power Dissipation	37	W
E_{AS}	Single pulse avalanche energy[2]	47.6	mJ
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +175	℃
$R_{\theta JC}$	Thermal Resistance, Junction to Case	4	℃/W

Package Marking and Ordering Information：

Part NO.	Marking	Package
DOD60N02	60N02	TO-252

Electrical Characteristics: (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=0V,I_D=250μA	20	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=20V, V_{GS}=0V	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±12V, V_{DS}=0A	---	---	±100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	0.4	0.7	1	V
$R_{DS(ON)}$	Drain-Source On Resistanc[3]	V_{GS}=4.5V,I_D=25A	---	4.8	6.5	mΩ
		V_{GS}=2.5V,I_D=15A	---	6.8	10	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=10V, V_{GS}=0V, f=1MHz	---	1831	---	pF
C_{oss}	Output Capacitance		---	288	---	
C_{rss}	Reverse Transfer Capacitance		---	270	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	VDD=10V R_{GEN}=3Ω， I_D=25A	---	14	---	ns
t_r	Rise Time		---	36	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	51	---	ns
t_f	Fall Time		---	20	---	ns
Q_g	Total Gate Charge	V_{GS}=4.5V, V_{DS}=10V, I_D=25A	---	22	---	nC
Q_{gs}	Gate-Source Charge		---	4.4	---	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	7.2	---	nC
Drain-Source Diode Characteristics						
I_S	Continuous Source Current	VG=VD=0V	---	---	60	A
I_{SM}	Pulsed Drain Current	VG=VD=0V	---	---	240	A
V_{SD}	Diode Forward Voltage[2]	V_{GS}=0V , I_D=30A	---	---	1.2	V
Trr	Reverse Recovery Time	IF=25A , dI/dt=100A/μs ,	---	25	---	ns
Qrr	Reverse Recovery Charge		---	21	---	nC

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. EAS condition: TJ=25℃, VDD=10V, VG=4.5V, L=0.5mH, RG=25Ω, IAS=13.8A

3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Typical Characteristics：

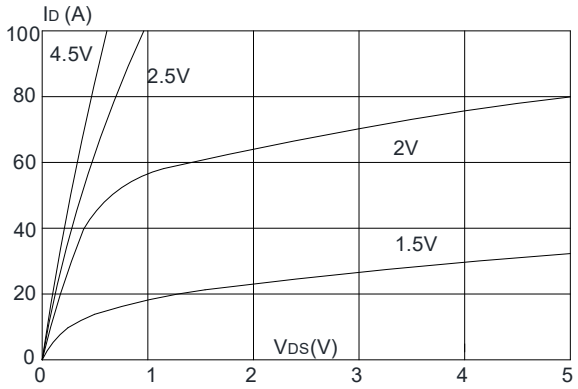


Figure1: Output Characteristics

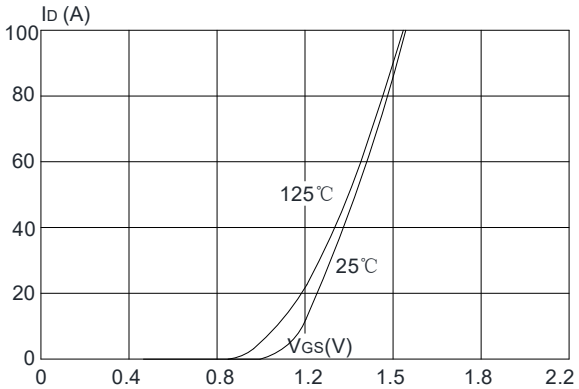


Figure 2: Typical Transfer Characteristics

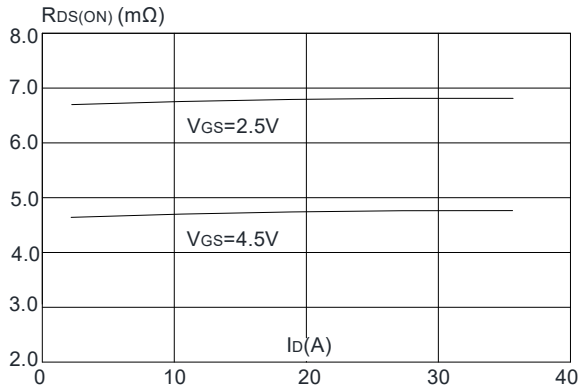


Figure 3: On-resistance vs. Drain Current

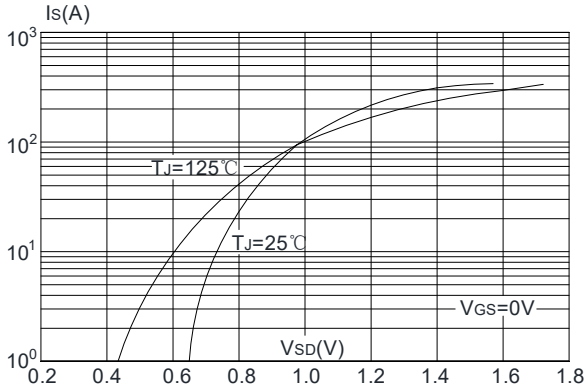


Figure 4: Body Diode Characteristics

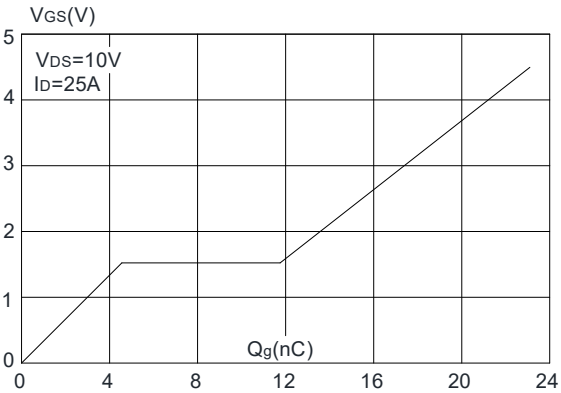


Figure 5: Gate Charge Characteristics

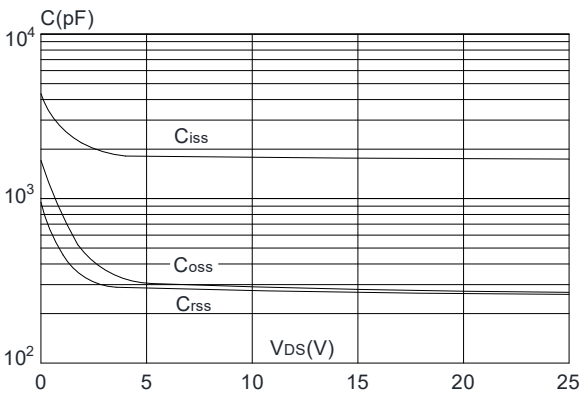


Figure 6: Capacitance Characteristics

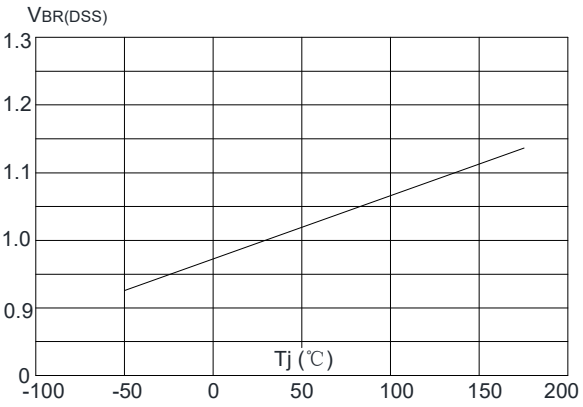


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

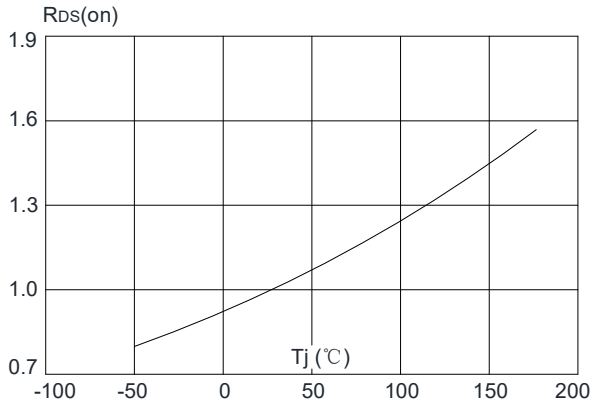


Figure 8: Normalized on Resistance vs. Junction Temperature

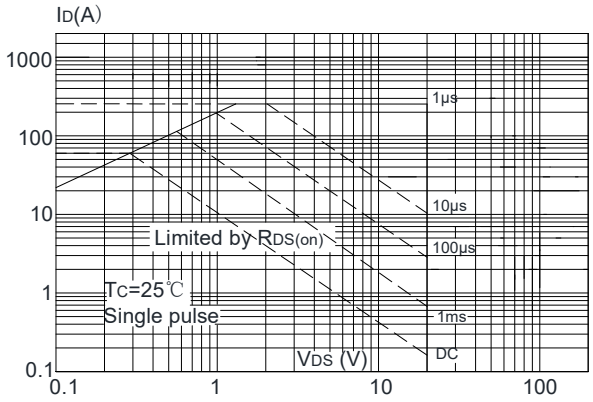


Figure 9: Maximum Safe Operating Area

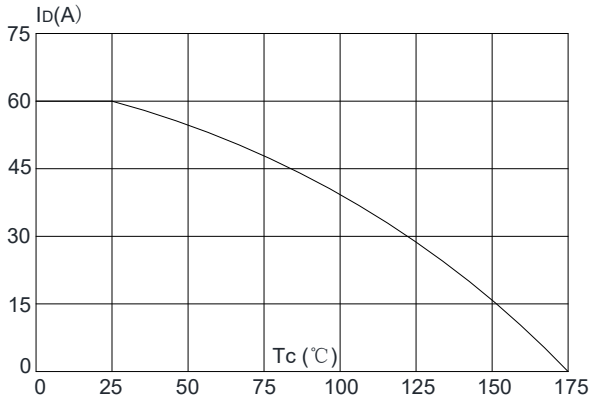


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

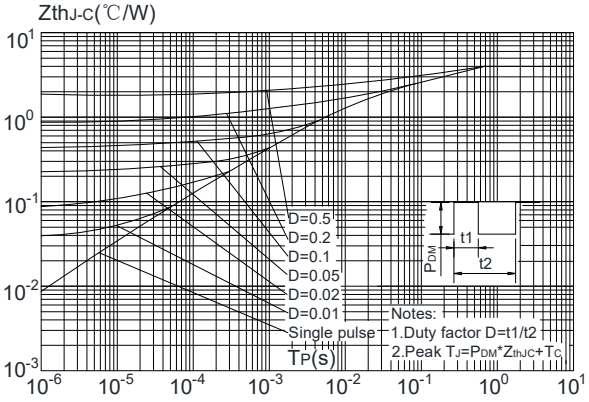


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case