

Features

- $R_{DS(ON)} \leq 8.5m\Omega @ V_{GS}=10V$
- $R_{DS(ON)} \leq 13m\Omega @ V_{GS}=4.5V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

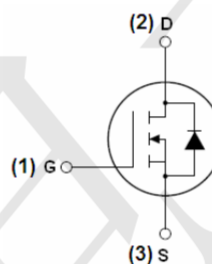
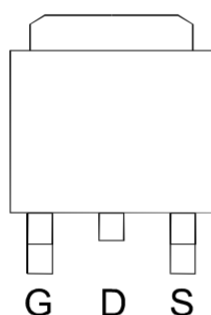
Application

- Power Management
- DC/DC Converter
- LCD TV & Monitor Display inverter
- CCFL inverter
- Secondary Synchronous Rectification

Package and Pin Configuration

(TO-252-3L)

Top View



Marking:60N03

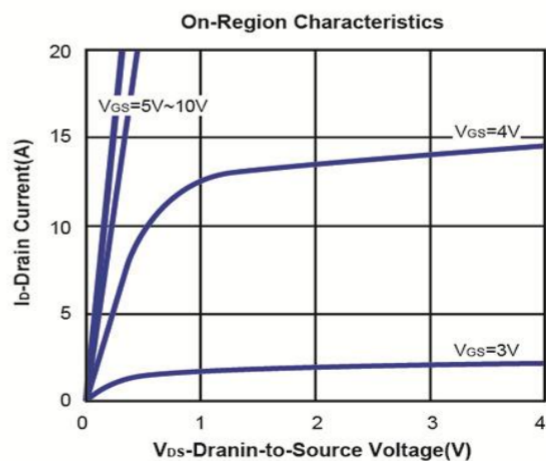
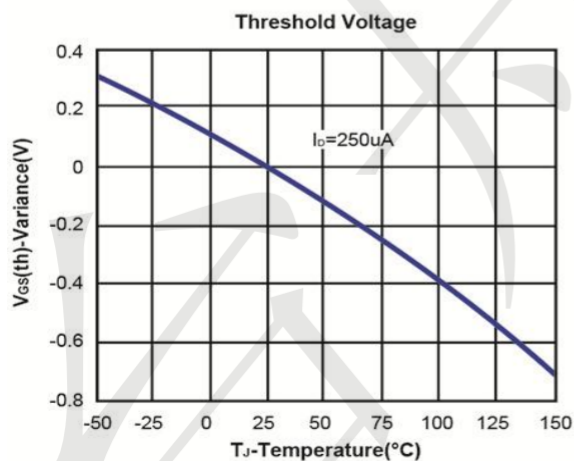
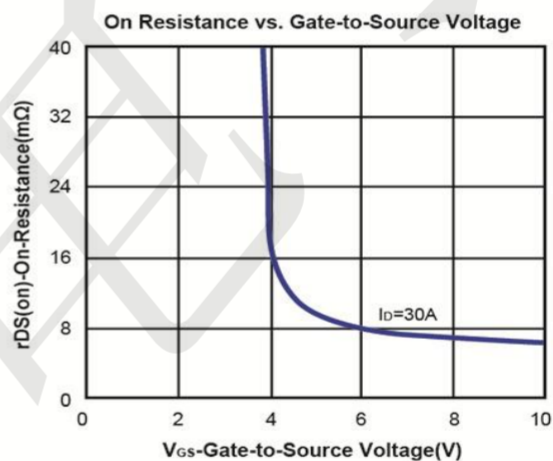
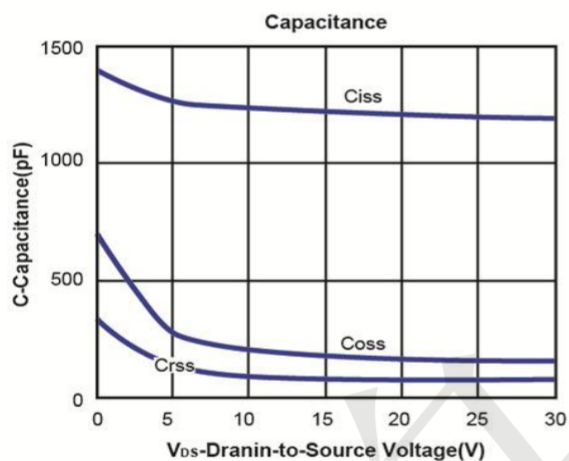
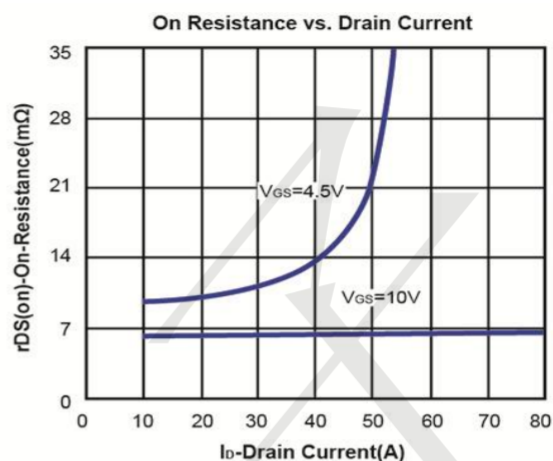
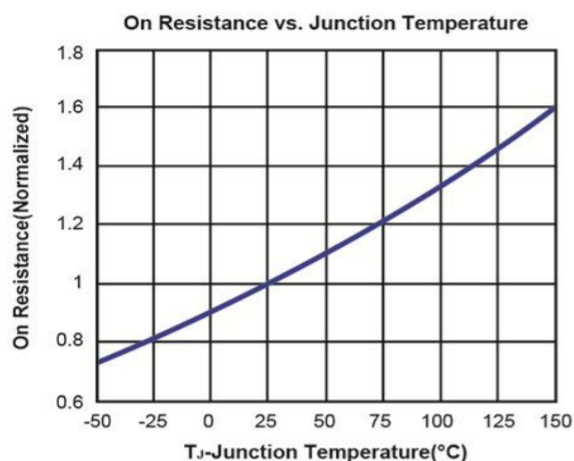
Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

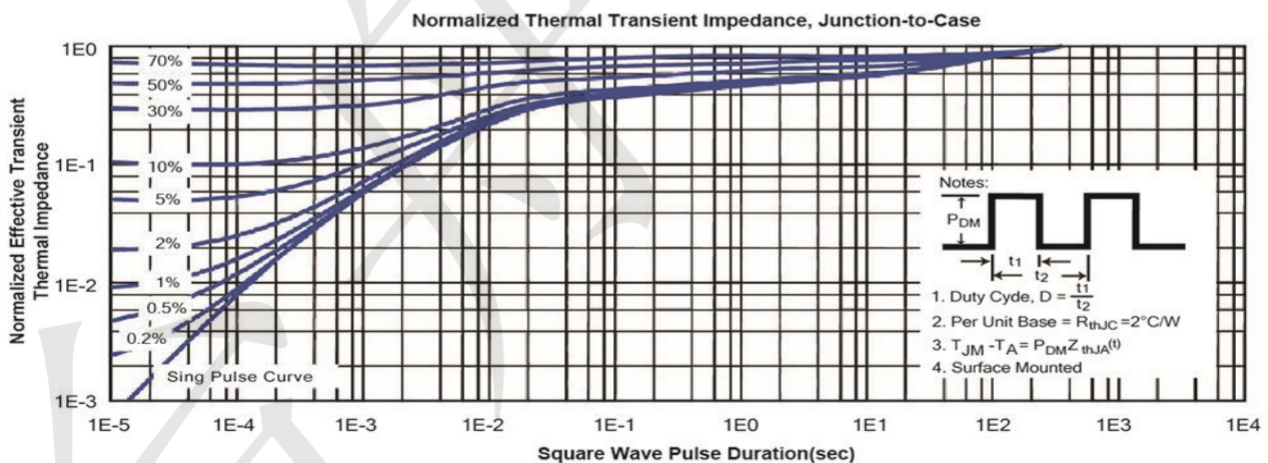
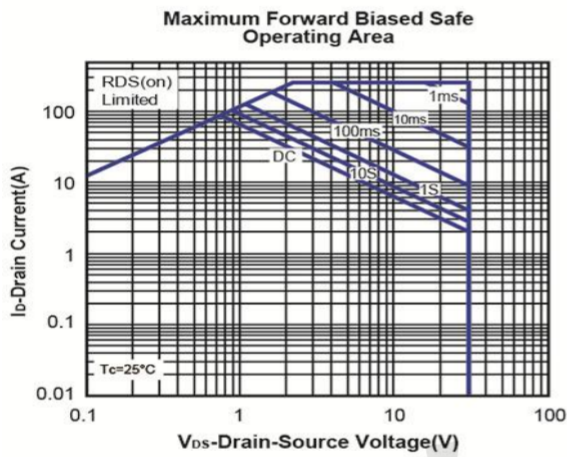
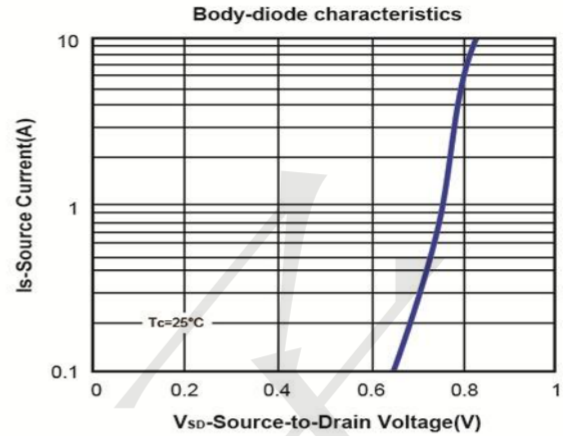
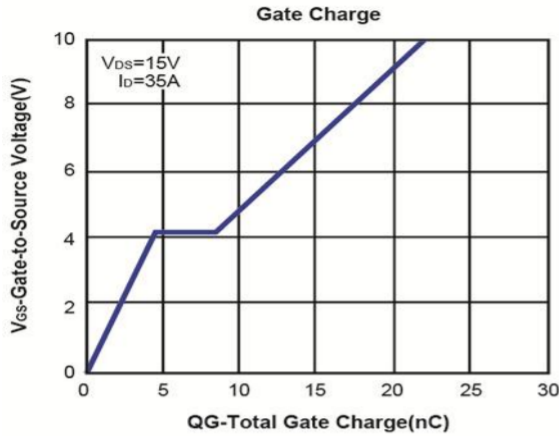
Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current	I_D	$T_C=25^\circ\text{C}$	48.5
		$T_C=70^\circ\text{C}$	
Pulsed Drain Current	I_{DM}	60.6	A
Maximum Power Dissipation	P_D	$T_C=25^\circ\text{C}$	50
		$T_C=70^\circ\text{C}$	32
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ\text{C}$
Thermal Resistance-Junction to Case	$R_{\theta JC}$	2.5	$^\circ\text{C/W}$

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

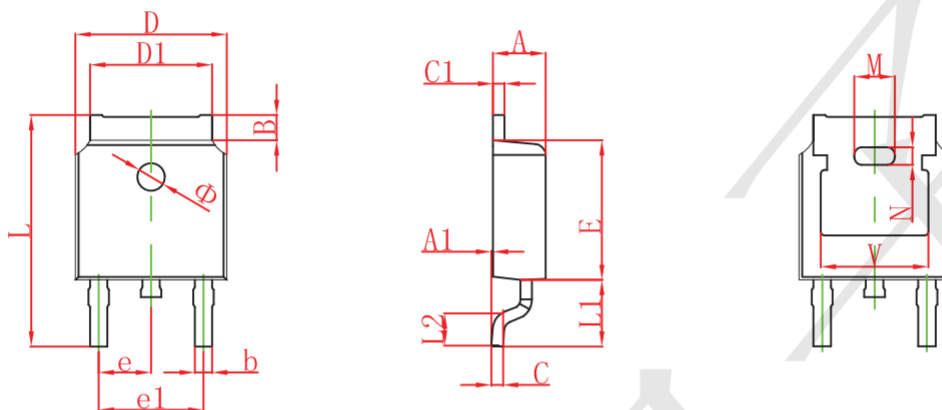
Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30			V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.6	3	V
I_{GSS}	Gate-Body Leakage	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=24V, V_{GS}=0V$			1	μA
$R_{DS(on)}$	Drain-Source On-Resistance	$V_{GS}=10V, I_D=30A$		6.5	8.5	$m\Omega$
		$V_{GS}=4.5V, I_D=20A$		10	13	
V_{SD}	Diode Forward Voltage	$I_S=20A, V_{GS}=0V$		0.87	1.5	V
DYNAMIC						
Q_g	Total Gate Charge	$V_{DS}=15V, V_{GS}=10V, I_D=35A$		22		nC
Q_{gs}	Gate-Source Charge			4.5		
Q_{gd}	Gate-Drain Charge			4		
C_{iss}	Input Capacitance	$V_{DS}=15V, V_{GS}=0V, f=1MHz$		1219		pF
C_{oss}	Output Capacitance			182		
C_{rss}	Reverse Transfer Capacitance			88		
$t_{d(on)}$	Turn-On Delay Time	$V_{DS}=15V, V_{GS}=10V$ $R_G=24\Omega, R_L=15\Omega,$ $I_D=1A$		13		ns
t_r	Turn-On Rise Time			10		
$t_{d(off)}$	Turn-Off Delay Time			46		
t_f	Turn-Off Fall Time			7		

Typical Characteristics





TO252 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.380	0.087	0.094
A1	0.000	0.100	0.000	0.004
B	0.800	1.400	0.031	0.055
b	0.710	0.810	0.028	0.032
c	0.460	0.560	0.018	0.022
c1	0.460	0.560	0.018	0.022
D	6.500	6.700	0.256	0.264
D1	5.130	5.460	0.202	0.215
E	6.000	6.200	0.236	0.244
e	2.286 TYP.		0.090 TYP.	
e1	4.327	4.727	0.170	0.186
M	1.778 REF.		0.070 REF.	
N	0.762 REF.		0.018 REF.	
L	9.800	10.400	0.386	0.409
L1	2.9 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
V	4.830 REF.		0.190 REF.	
Φ	1.100	1.300	0.043	0.051