

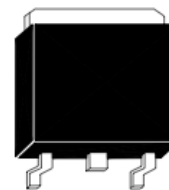
MSD50N03 N-Channel Logic Level Enhancement Mode Power MOSFET

TO-252

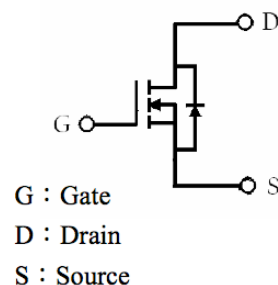
FEATURES

- $V_{DS}=30V$, $I_D=50A$, $R_{DS(ON)}=9m\Omega$
- Low Gate Charge
- Repetitive Avalanche Rated
- Simple Drive Requirement
- Fast Switching Characteristic
- RoHS compliant package

BV_{DSS}	30V
I_D	50A
R_{DSON}	9m Ω



G D S



Absolute Maximum Ratings (Tc=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current @ TC=25°C	I_D	50	A
Continuous Drain Current @ TC=100°C	I_D	35	A
Pulsed Drain Current	I_{DM}^{*1}	140	A
Avalanche Current	I_{AS}	37.5	A
Avalanche Energy @ L=0.1mH, $I_D=37.5A$, $R_g=25\Omega$	E_{AS}	70	mJ
Repetitive Avalanche Energy @ L=0.05mH	E_{AR}^{*2}	15	mJ
Power Dissipation (TC=25°C)	PD	60	W
Power Dissipation (TC=100°C)		32	W
Operating Junction and Storage Temperature	T_j, T_{stg}	-55~+175	°C

Note:

 100% UIS testing in condition of $V_D=15V$, $L=0.1mH$, $V_G=10V$, $I_L=25A$, Rated $V_{DS}=25V$ N-CH

*1. Pulse width limited by maximum junction temperature

 *2. Duty cycle $\leq 1\%$

Thermal characteristics (Tc=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Typical thermal resistance	R_{thjc}	2.5	°C/W
	$R_{\theta JA}$	75	

Characteristics (Tc=25°C, unless otherwise specified)

Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics					
BVDSS	VGS=0, ID=250μA	30	-	-	V
VGS	VDS = VGS, ID=250μA	1.0	1.7	3.0	V
GFS	VDS =5V, ID=20A	-	20	-	S
IGSS	VGS=±20	-	-	±100	nA
IDSS	VDS =24V, VGS =0	-	-	1	uA
	VDS =20V, VGS =0, Tj=125°C	-	-	25	
ID(ON)	VGS =10V, VDS=10V	50	-	-	A
*RDS(ON)	VGS =10V, ID=25A	-	7.5	9	mΩ
	VGS =5V, ID=20A	-	12	15	

Dynamic Characteristics

Rg	VGS=15mV, VDS=0, f=1MHz	-	1.7	-	Ω
Qg(VGS=10V)	ID=25A, VDS=15V, VGS=10V	-	23	-	nC
Qg(VGS=5V)		-	13	-	
Qgs		-	4.7	-	
Qgd		-	7.4	-	
td(ON)	VDS=15V, ID=25A, VGS=10V, RG=2.7Ω, RD=0.6Ω	-	10	-	ns
tr		-	8	-	
td(OFF)		-	30	-	
tf		-	5	-	
Ciss	VGS=0V, VDS=15V, f=1MHz	-	2020	-	pF
Coss		-	275	-	
Crss		-	160	-	

Source-Drain Diode Characteristics

IS		-	-	50	A
ISM		-	-	140	
VSD	IF=IS, VGS=0	-	-	1.3	V
trr	IF=IS, dIF/dt=100A/μs	-	22	-	nS
IRM(REC)		-	180	-	A
Qrr		-	12	-	nC

*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

Ordering Information

Package	Shipping
TO-252	2500 pcs / Tape & Reel