

Product Summary

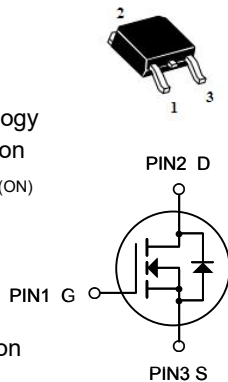
- V_{DS} 30V
- I_D 100A
- $R_{DS(ON)}$ TYP (at $V_{GS}=10V$) 3.4m Ω
- $R_{DS(ON)}$ TYP (at $V_{GS}=4.5V$) 6.2m Ω
- 100% UIS Tested
- 100% ∇V_{DS} Tested

General Description

- Split Gate Trench MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$

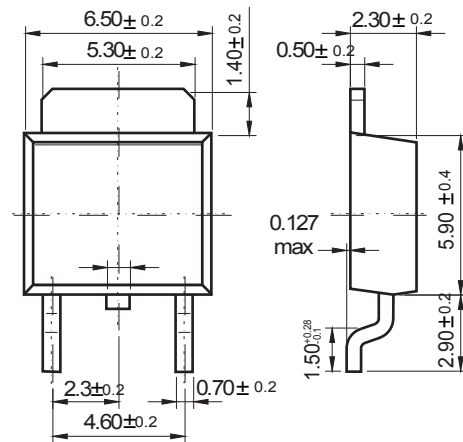
Applications

- DC-DC Converters
- Power management functions
- Industrial and Motor Drive application



TO-252

Unit: mm



Dimensions in inches and (millimeters)

ABSOLUTE MAXIMUM RATINGS (T_C = 25 °C, unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage ($V_{GS}=0V$)	30	V
V_{GS}	Gate-Source Voltage ($V_{DS}=0V$)	±20	V
I_D	Drain Current-Continuous($T_C=25^{\circ}C$) (Note 1)	90	A
	Drain Current-Continuous($T_C=100^{\circ}C$)	63	A
I_{DM} (pulse)	Drain Current-Continuous@ Current-Pulsed (Note 2)	200	A
P_D	Maximum Power Dissipation($T_C=25^{\circ}C$)	105	W
	Maximum Power Dissipation($T_C=100^{\circ}C$)	75	W
E_{AS}	Avalanche energy (Note 3)	280	mJ
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55 To 175	°C
$R_{\theta JC}$	Thermal Resistance,Junction-to-Case	2	°C/W

100N03

ELECTRICAL CHARACTERISTICS (T_C=25°C, unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V I _D =250μA	30			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V,V _{GS} =0V			1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V,V _{DS} =0V			±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} ,I _D =250μA	1.0	1.5	2.5	V
g _{FS}	Forward Transconductance	V _{DS} =5V,I _D =20A	10	20		S
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =30A		3.4	4.8	mΩ
		V _{GS} =5V, I _D =20A		6.2	8.0	mΩ
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =15V,V _{GS} =0V, f=1.0MHz		2000		pF
C _{oss}	Output Capacitance			248		pF
C _{rss}	Reverse Transfer Capacitance			221		pF
R _g	Gate resistance	V _{GS} =0V, V _{DS} =0V,f=1.0MHz		1.43		Ω
Switching Times						
t _{d(on)}	Turn-on Delay Time	V _{GS} =10V, V _{DS} =15V, R _L =0.75Ω,R _{GEN} =3Ω		55		nS
t _r	Turn-on Rise Time			36.4		nS
t _{d(off)}	Turn-Off Delay Time			37		nS
t _f	Turn-Off Fall Time			14		nS
Q _g	Total Gate Charge	V _{GS} =10V, V _{DS} =15V, I _D =45A		41		nC
Q _{gs}	Gate-Source Charge			7		nC
Q _{gd}	Gate-Drain Charge			10		nC
Source-Drain Diode Characteristics						
I _{SD}	Source-Drain Current(Body Diode)				90	A
V _{SD}	Forward on Voltage	V _{GS} =0V,I _S =20A			1.2	V

Notes 1. The maximum current rating is package limited.

Notes 2. Repetitive Rating: Pulse width limited by maximum junction temperature

Notes 3. EAS condition: T_J=25°C, V_{DD}=30V, V_G=10V, R_G=25Ω

RATING AND CHARACTERISTIC CURVES (100N03)

Typical Electrical and Thermal Characteristics (Curves)

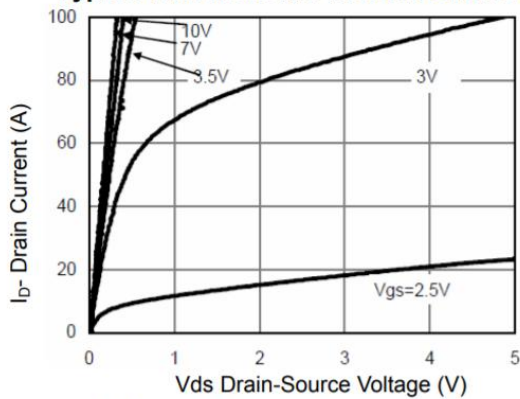


Figure 1 Output Characteristics

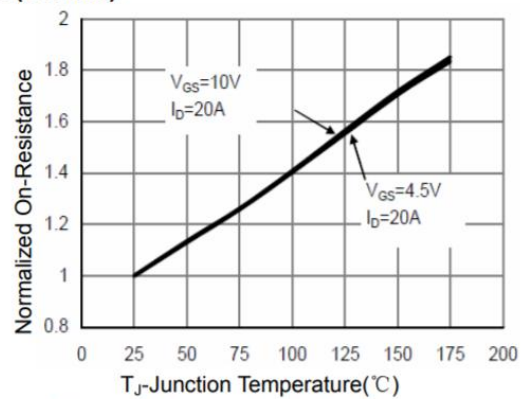


Figure 4 Rdson-Junction Temperature

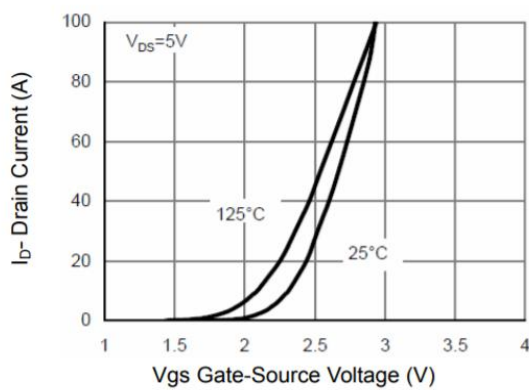


Figure 2 Transfer Characteristics

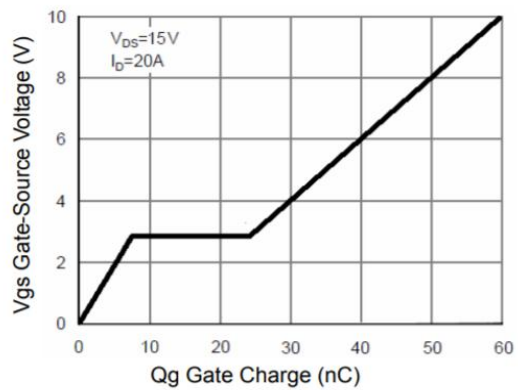


Figure 5 Gate Charge

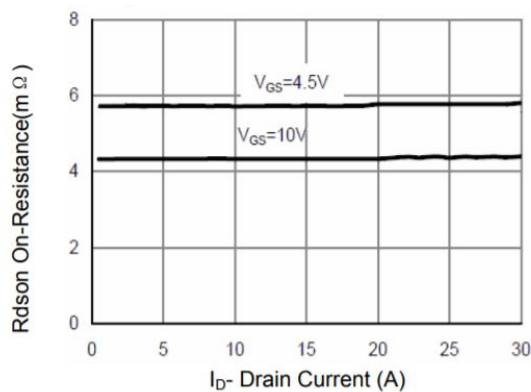


Figure 3 Rdson- Drain Current

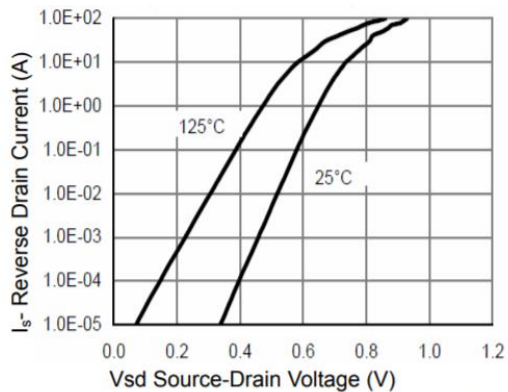


Figure 6 Source- Drain Diode Forward

RATING AND CHARACTERISTIC CURVES (100N03)

