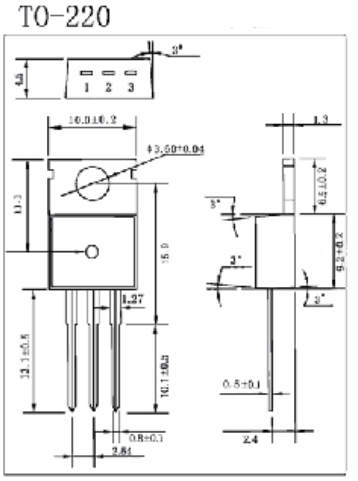
N-Channel Power MOSFET (100V/27A)



1. Gate 2. Drain 3. Source

GENERAL DESCRIPTION

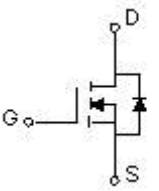
It uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge.
This device is suitable for high current load applications.

FEATURE

- High current rating
- Ultra lower $R_{DS(on)}$
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation

APPLICATION

- Power switching application
- Load switching in high circuit application
- DC/DC converters



Maximum ratings (T_a=25℃ unless otherwise noted)

PARAMETER	Sumbol	Value	Unit
Drain- Source Voltage	V_{DS}	100	V
Gate- Source Voltage	V_{GS}	± 20	
Continuous Drain Current	I_D	27	A
Pulsed Drain Current	I_{DM}	50	
Single Pulsed Avalanche Energy (note1)	E_{AS}	250	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{STG}	- 55 ~ +150	
Maximum lead temperure for soldering purposes , 1/8”from case for 5 seconds	T_L	260	

Electrical characteristics (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D=250μA	100			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =100V, V_{GS} =0V			25	μA
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±20V			±100	nA
On characteristics (note2)						
Gate- threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2		4	V
Static drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V,I_D =16A		34	44	mΩ
Forward transconductance	g_{fs}	V_{DS} =50V, I_D=7.5A	3.8			S
Dynamic characteristics (note 3)						
Input capacitance	C_{iss}	V_{DS} =25V,V_{GS} =0V,f =1MHz		800		pF
Output capacitance	C_{oss}			240		
Reverse transfer capacitance	C_{rss}			76		
Switching characteristics (note 3)						
Turn-on delay time	$t_{d(on)}$	V_{DD}=100V, V_{GS}=10V, R_G=12Ω, I_D =5.9A		9.4		ns
Turn-on rise time	t_r			28		
Turn-off delay time	$t_{d(off)}$			39		
Turn-off fall time	t_f			20		
Drain-Source Diode Characteristics						
Drain-source diode forward voltage(note2)	V_{SD}	V_{GS} = 0V, I_S=14A			2	V
Continuous drain-source diode forward current(note4)	I_S				9.3	A
Pulsed drain-source diode forward current	I_{SM}				37	A

Notes :

1. L=4.6mH, I_L=9.9A, V_{DD}=50V, R_G=25Ω,Starting T_J=25℃.
2. Pulse Test : Pulse width ≤300μs, duty cycle ≤2%.
3. Guaranteed by design,not subject to production
4. Surface mounted on FR4 board, t≤10s

TYPICAL CHARACTERISTICS (Ta=25℃, unless otherwise noted)

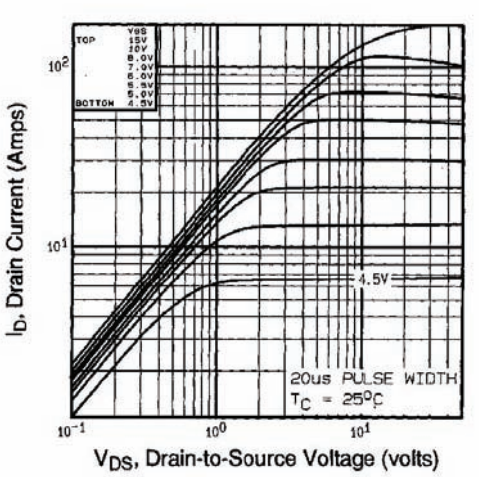


Fig. 1 - Typical Output Characteristics, T_C = 25 °C

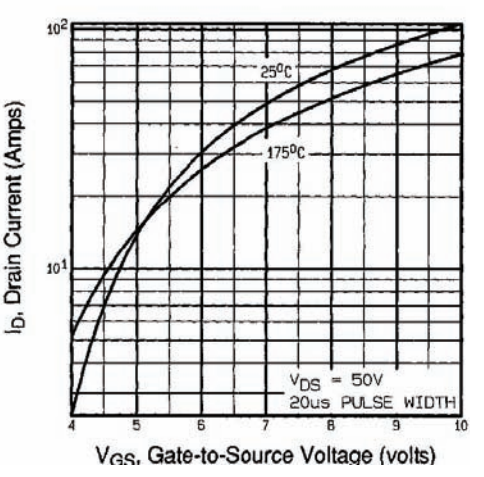


Fig. 3 - Typical Transfer Characteristics

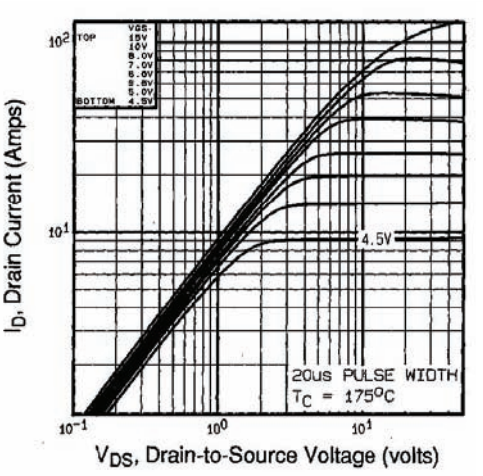


Fig. 2 - Typical Output Characteristics, T_C = 175 °C

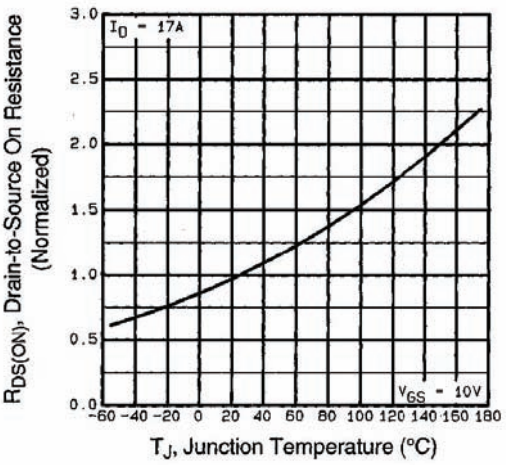


Fig. 4 - Normalized On- Resistance vs. Temperature

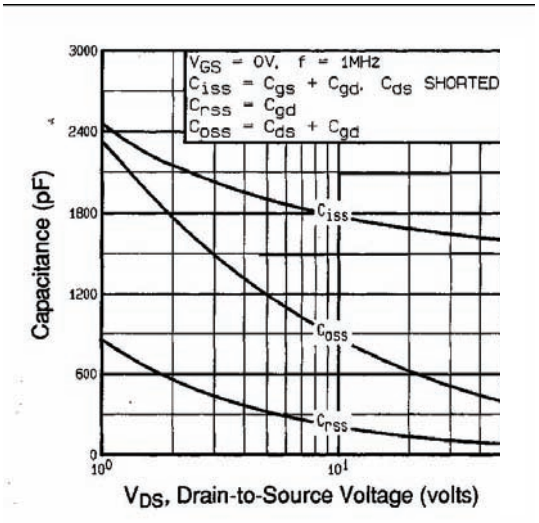


Fig. 5 - Typical Capacitance vs. Drain- to- Source Voltage

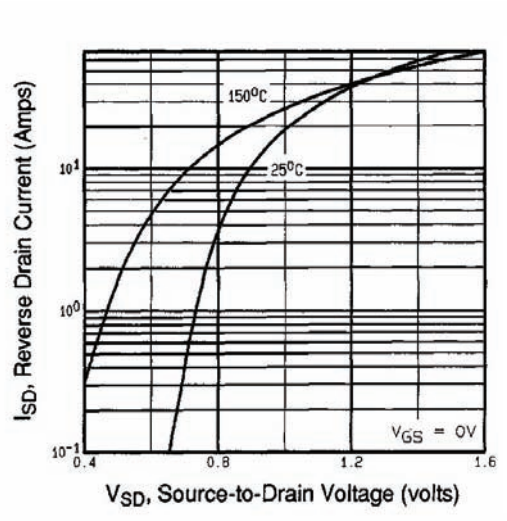


Fig. 7 - Typical Source- Drain Diode Forward Voltage

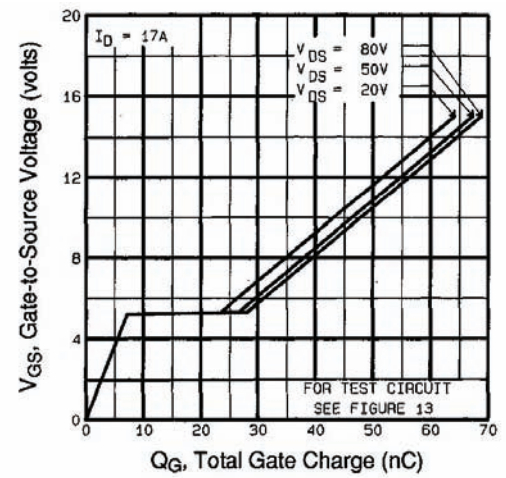


Fig. 6 - Typical Gate Charge vs. Gate-to-Source Voltage

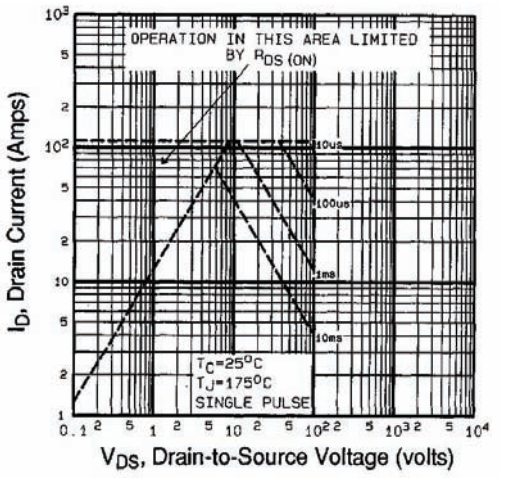


Fig. 8 - Maximum Safe Operating Area

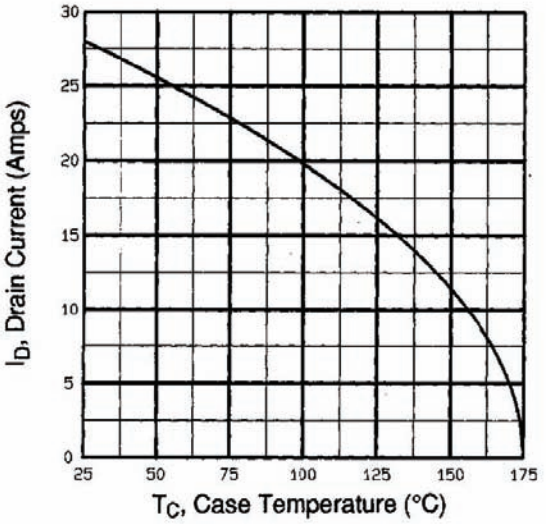


Fig. 9 - Maximum Drain Current vs. Case Temperature

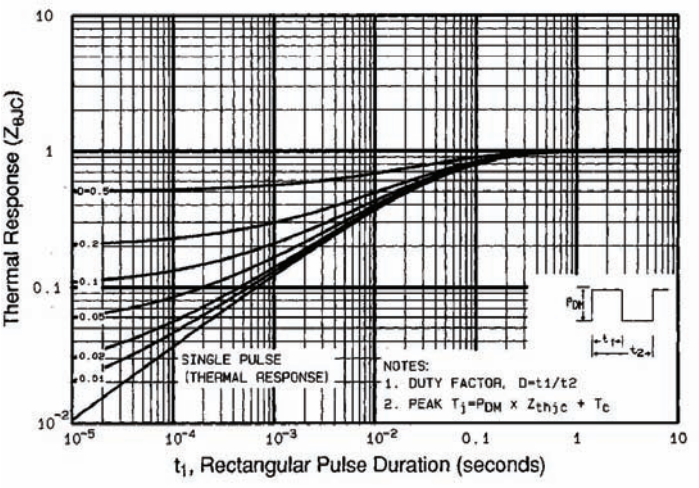


Fig. 10 - Maximum Effective Transient Thermal Impedance, Junction-to-Case

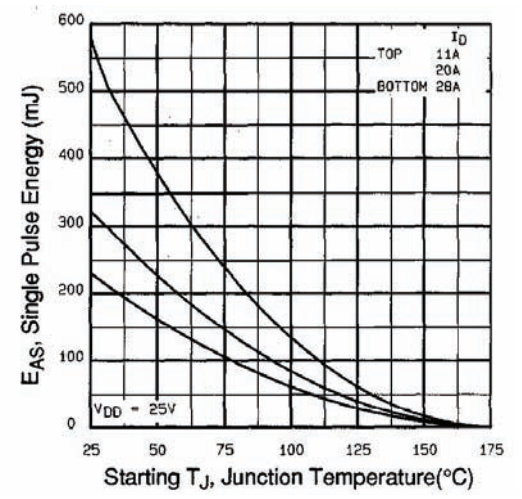


Fig. 11 - Maximum Avalanche Energy vs. Drain Current