

RoHS Compliant Product
A suffix of "-C" specifies halogen free

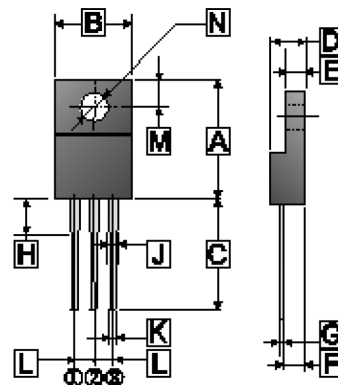
DESCRIPTION

The high voltage MOSFET uses an advanced termination scheme to provide enhanced voltage-blocking capability without degrading performance over time. In addition, this advanced MOSFET is designed to withstand high energy in avalanche and commutation modes. The new energy efficient design also offers a drain-to-source diode with a fast recovery time. Designed for high voltage, high speed switching applications in power suppliers, converters, and PWM motor controls, these devices are particularly well suited for bridge circuits whose diode speed and commutating safe operating areas are critical and offer additional and safety margin against unexpected voltage transients.

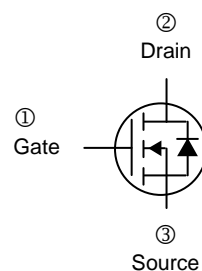
FEATURES

- Robust high voltage termination
- Specified avalanche energy
- Source-to-drain diode recovery time comparable to a discrete fast recovery diode
- Diode is characterized for the use in bridge circuits
- I_{DSS} and $V_{DS(ON)}$ are specified at the elevated temperature

ITO-220J



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	14.80	15.20	H	3.60	4.00
B	9.96	10.36	J	1.30 REF.	
C	13.20 REF.		K	0.50	0.75
D	4.30	4.70	L	2.54 REF.	
E	2.80	3.20	M	2.70 REF.	
F	2.50	2.90	N	∅ 3.5 REF.	
G	0.50	0.75			



ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	600	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	2	A
Pulsed Drain Current	I_{DM}	9	A
Power Dissipation	P_D	2	W
Single Pulsed Avalanche Energy ¹	E_{AS}	128	mJ
Junction and Storage Temperature Range	T_J, T_{STG}	150, -55~150	$^\circ\text{C}$
Thermal Resistance Rating			
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	$^\circ\text{C}/\text{W}$

Notes:

1. E_{AS} condition: $L=64\text{mH}$, $I_L=2\text{A}$, $V_{DD}=50\text{V}$, $R_G=25\Omega$, $T_J=25^\circ\text{C}$.

ELECTRICAL CHARACTERISTICS ($T_J=25^\circ\text{C}$ unless otherwise specified)

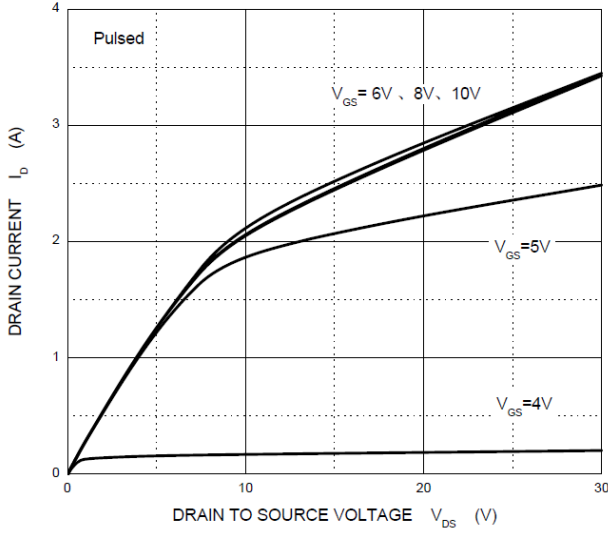
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Drain-Source Breakdown Voltage	$B_{V_{DS}}$	600	-	-	V	$V_{GS}=0, I_D=250\mu\text{A}$
Gate-Threshold Voltage ¹	$V_{GS(th)}$	2	-	4	V	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$
Gate-Source Leakage Current ¹	I_{GSS}	-	-	± 100	nA	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$
Drain-Source Leakage Current	I_{DSS}	-	-	25	μA	$V_{DS}=600\text{V}, V_{GS}=0$
Static Drain-Source On-Resistance ¹	$R_{DS(ON)}$	-	-	4.4	Ω	$V_{GS}=10\text{V}, I_D=1\text{A}$
Forward Transconductance ¹	g_{FS}	1	-	-	S	$V_{DS}=50\text{V}, I_D=1\text{A}$
Input Capacitance	C_{iss}	-	435	-	pF	$V_{DS}=25\text{V}$ $V_{GS}=0$ $f=1\text{MHz}$
Output Capacitance	C_{oss}	-	56	-		
Reverse Transfer Capacitance	C_{rss}	-	9.2	-		
Turn-on Delay Time	$T_{d(on)}$	-	12	-	nS	$V_{DD}=300\text{V}$ $V_{GS}=10\text{V}$ $R_G=18\Omega$ $I_D=2\text{A}$
Rise Time	T_r	-	21	-		
Turn-off Delay Time	$T_{d(off)}$	-	30	-		
Fall Time	T_f	-	24	-		
Diode Forward Voltage ¹	V_{SD}	-	-	1.6	V	$I_S=2\text{A}, V_{GS}=0$

Notes:

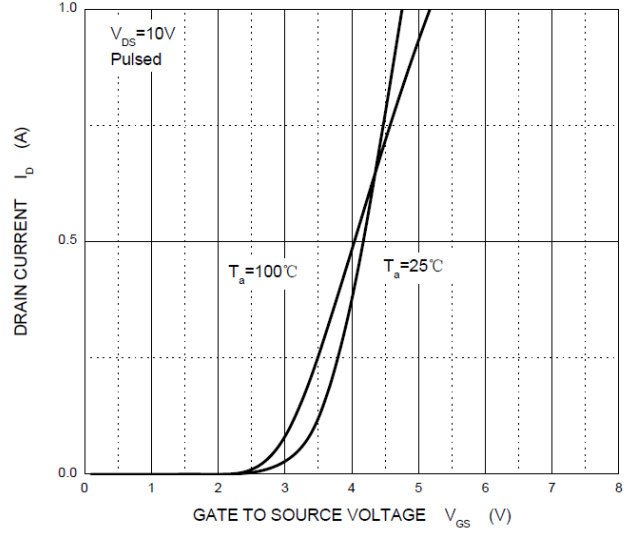
1. Pulse Test : Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

CHARACTERISTIC CURVES

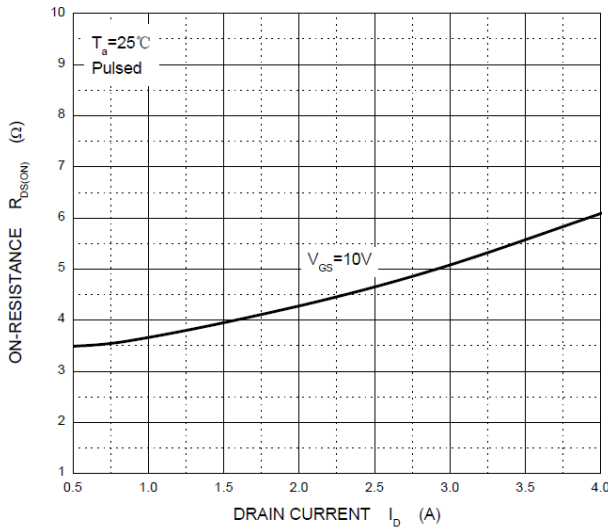
Output Characteristics



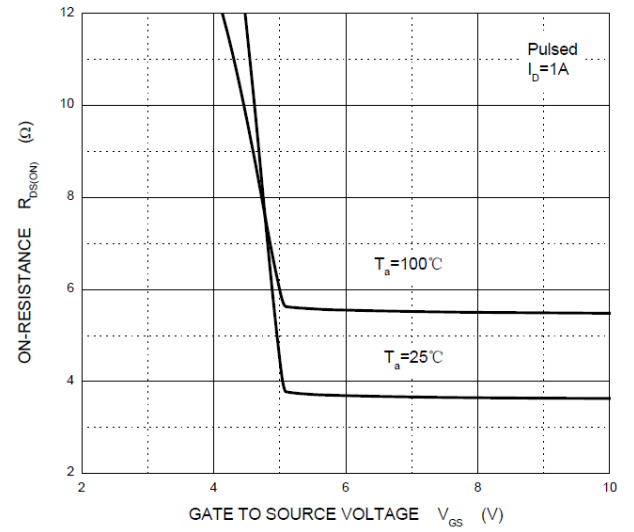
Transfer Characteristics



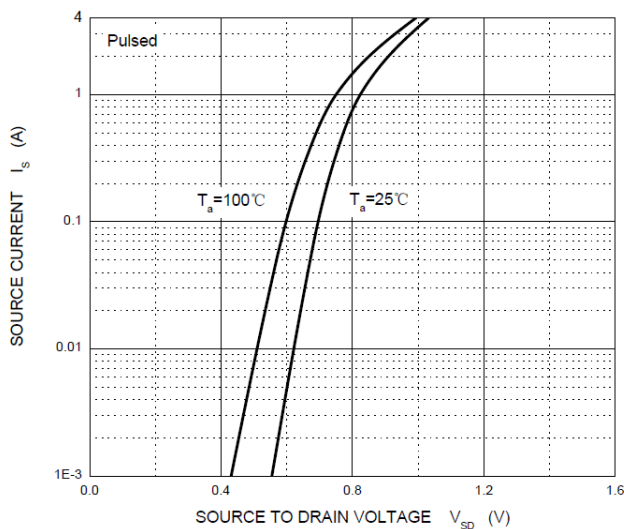
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage

