

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-100V	70mΩ@-10V	-22A
	85mΩ@-4.5V	

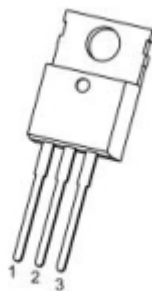
Feature

- Advanced trench process technology
- Super high dense cell design

Application

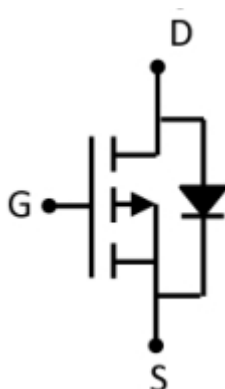
- Motor control
- Power management
- DC/DC convertor

Package

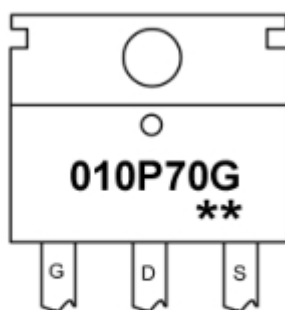


TO-220-3L-C(1:G 2:D 3:S)

Circuit diagram



Marking



010P70G =Device Code
 ** =Week Code

Absolute maximum ratings

(T_a=25°C unless otherwise noted)

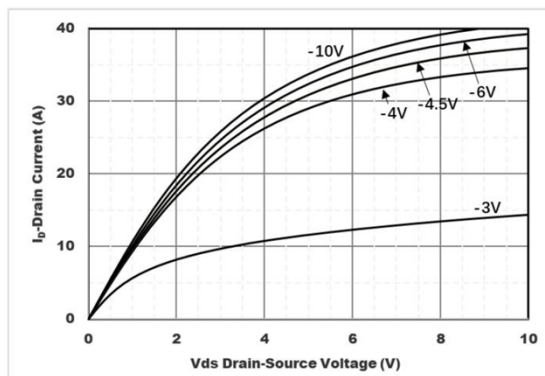
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-100	V
Gate-Source Voltage	V _{GS}	±20	V
Drain Current-Continuous (T _C =25°C)	I _D	-22	W
Drain Current – Pulsed	I _{DM}	-88	A
Power Dissipation (T _C =25°C)	P _D	90	W
Thermal Resistance Junction to Case	R _{θJC}	1.38	°C/ W
Storage Temperature Range	T _{STG}	-55~ +150	°C
Operating Junction Temperature Range	T _J	-55~ +150	°C

Electrical characteristics

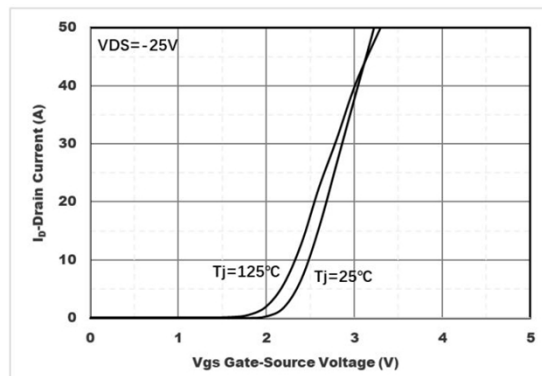
($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	BV_{DSS}	$V_{GS} = 0V, I_D = -250\mu A$	-100			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = -100V, V_{GS} = 0V$			-1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	μA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1	-1.7	-2.5	V
Static Drain-Source on-Resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -10A$		70	88	m Ω
		$V_{GS} = -4.5V, I_D = -5A$		85	115	
Dynamic characteristics ⁴						
Input Capacitance	C_{iss}	$V_{DS} = -50V, V_{GS} = 0V, f = 1MHz$		1050		pF
Output Capacitance	C_{oss}			120		
Reverse Transfer Capacitance	C_{rss}			23		
Total Gate Charge	Q_g	$V_{GS} = -10V, V_{DS} = -50V, I_D = -10A$		20		nC
Gate-Source Charge	Q_{gS}			4		
Gate-Drain Charge	Q_{gd}			4.4		
Turn-On Delay Time	$T_{d(on)}$	$V_{GS} = -10V, V_{DD} = -50V, I_D = -10A, R_{GEN} = 9.1\Omega$		15		nS
Rise Time	T_r			30		
Turn-Off Delay Time	$T_{d(off)}$			73		
Fall Time	T_f			76		
Drain-Source Diode Characteristics						
Diode forward voltage	V_{SD}	$V_{GS} = 0V, I_S = -1A$			-1.2	V

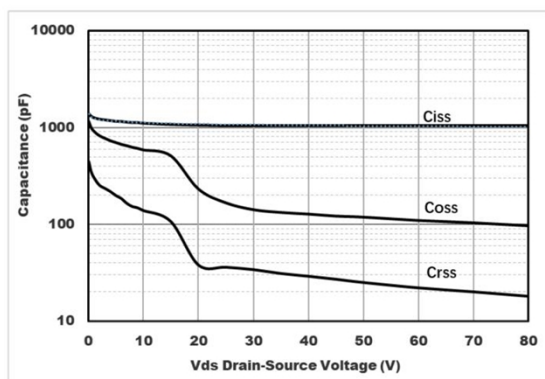
Typical Characteristics



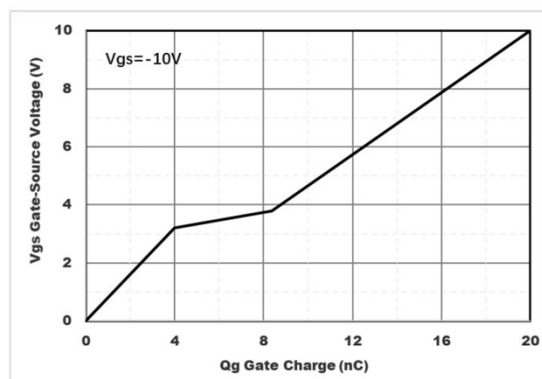
Output Characteristics



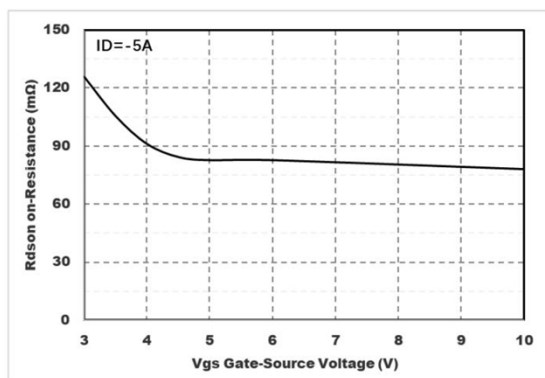
Transfer Characteristics



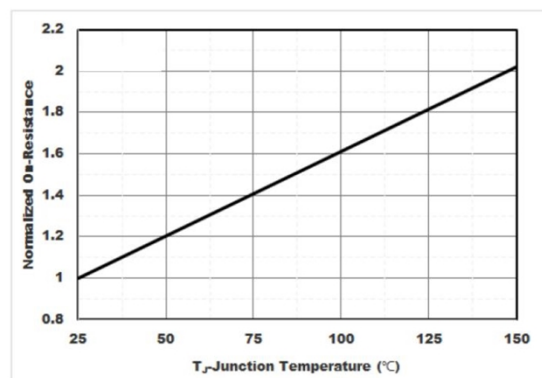
Capacitance Characteristics



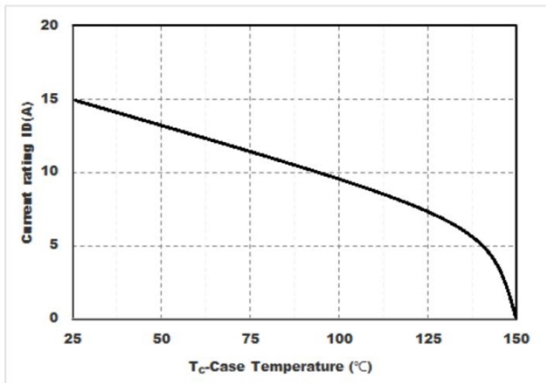
Gate Charge



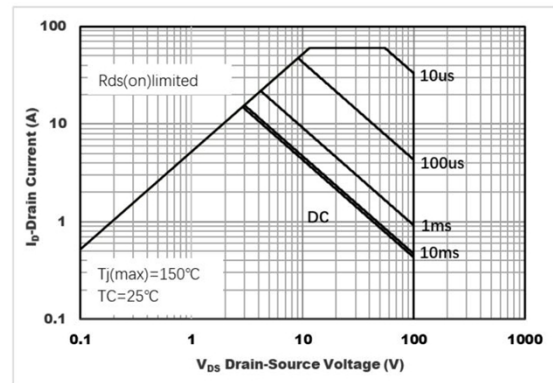
On-Resistance vs. Gate to Source Voltage



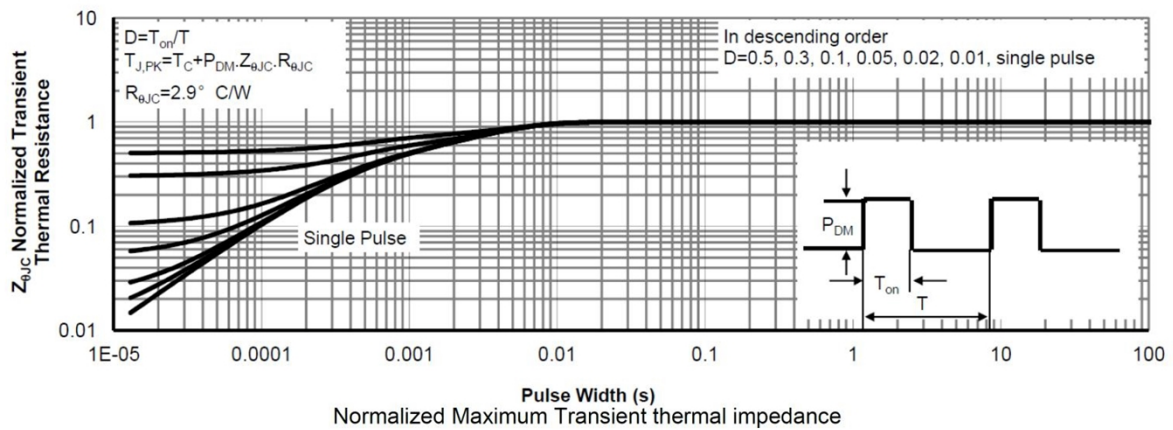
Normalized On-Resistance



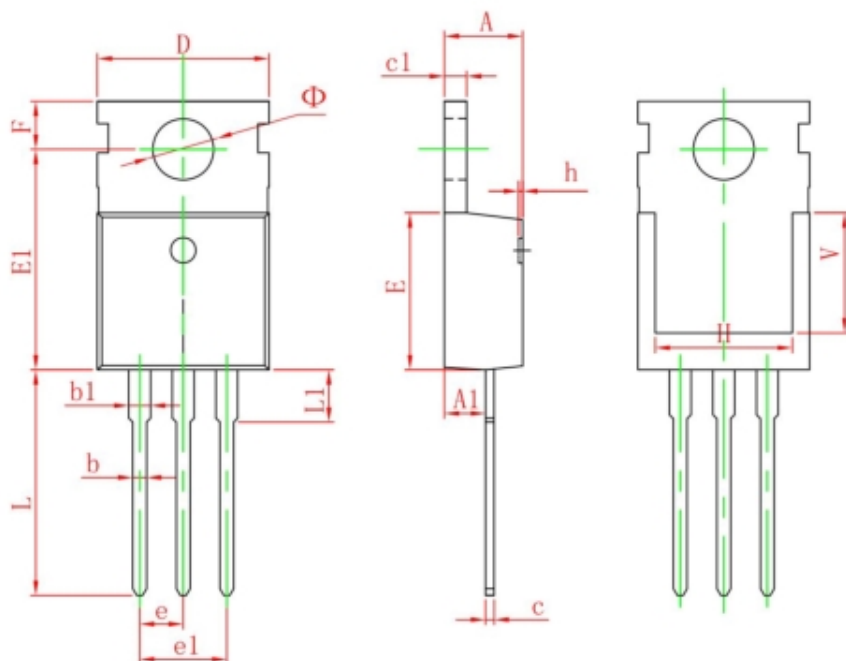
Drain current



Safe Operation Area



TO-220-3L-C Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.400	4.600	0.173	0.181
A1	2.250	2.550	0.089	0.100
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.330	0.650	0.013	0.026
c1	1.200	1.400	0.047	0.055
D	9.910	10.250	0.390	0.404
E	8.950	9.750	0.352	0.384
E1	12.650	13.050	0.498	0.514
e	2.540 TYP.		0.100 TYP.	
e1	4.980	5.180	0.196	0.204
F	2.650	2.950	0.104	0.116
H	7.900	8.100	0.311	0.319
h	0.000	0.300	0.000	0.012
L	12.900	13.400	0.508	0.528
L1	2.850	3.250	0.112	0.128
V	6.900 REF.		0.276 REF.	
Φ	3.400	3.800	0.134	0.150