Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-100V	80mΩ@10V	-23A
	88mΩ@4.5V	

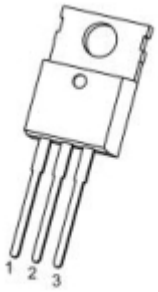
Feature

- Fast Switching
- Low Gate Charge and Rdson
- Advanced Split Gate Trench Technology
- 100% Single Pulse avalanche energy Test

Application

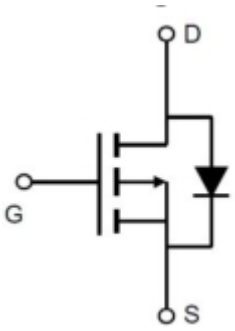
- Power switching application
- PWM Application
- DC-DC Converter

Package



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

Circuit diagram



Marking

010P80 =Device Code
** =Week Code

Absolute maximum ratings

(T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (T_C=25℃)	I_D	-23	W
Pulsed Drain Current[2]	I_{DM}	-92	A
Single Pulse Avalanche Energy[3]	E_{AS}	137	mJ
Power Dissipation[4] (T_C=25℃)	P_D	96	W
Thermal Resistance Junction to Case[1]	$R_{\theta JC}$	1.3	℃/ W
Storage Temperature Range	T_{STG}	-55~ +150	℃
Operating Junction Temperature Range	$T_{J,}$	-55~ +150	℃

Electrical characteristics

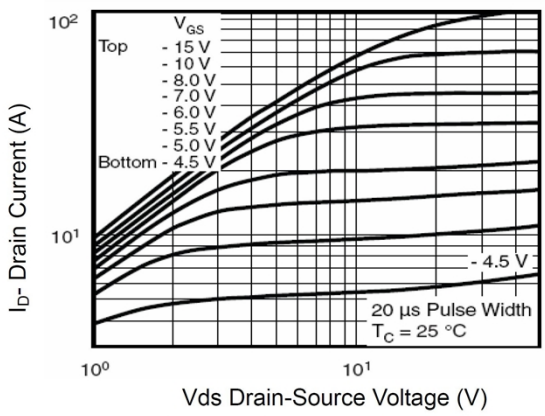
(T_A=25℃, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	BV_{DSS}	V_{GS} = 0V, I_D =-250μA	-100			V
Drain-Source Leakage Current	I_{DSS}	V_{DS} =-24V,V_{GS} = 0V , T_J=25℃			-1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS} =±20V , V_{DS}=0V			±100	uA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1	-1.7	-2.5	V
Static Drain-Source on-Resistance	$R_{DS(on)}$	V_{GS} =-10V, I_D =-11A		80	95	mΩ
		V_{GS} =-4.5V, I_D =-8A		88	110	
Dynamic characteristics[4]						
Input Capacitance	C_{iss}	V_{DS}=-25V,V_{GS}=0V, f=1MHz		3029		pF
Output Capacitance	C_{oss}			129		
Reverse Transfer Capacitance	C_{rss}			76		
Switching Characteristics						
Total Gate Charge(4.5V)	Q_g	V_{DS}=-50V, V_{GS}=-10V, I_D=-11A		44.5		nC
Gate-Source Charge	Q_{gS}			9.1		
Gate-Drain Charge	Q_{gd}			5.9		
Turn-On Delay Time	$T_{d(on)}$	V_{DD}=-50V, I_D=-16A V_{GS}=-10V,, R_{GEN}=9.1Ω		14		nS
Rise Time	T_r			71		
Turn-Off Delay Time	$T_{d(off)}$			34		
Fall Time	T_f			56		
Drain-Source Diode Characteristics						
Diode forward voltage[2]	V_{SD}	V_{GS}=0V, I_S=-1A, T_J=25℃			-1.2	V

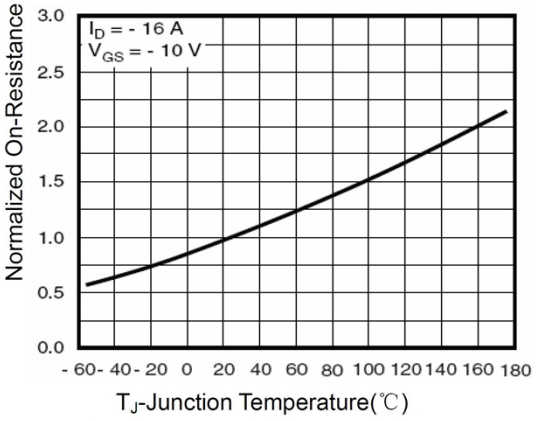
Note :

1. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.
2. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
3. The EAS data shows Max. rating . The test condition is V_{DD}=50V,V_{GS}=10V,L=0.5mH,Rg=25Ω
4. The power dissipation is limited by 150℃ junction temperature

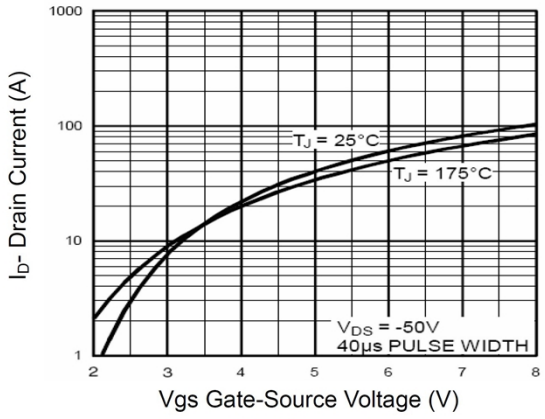
Typical Characteristics



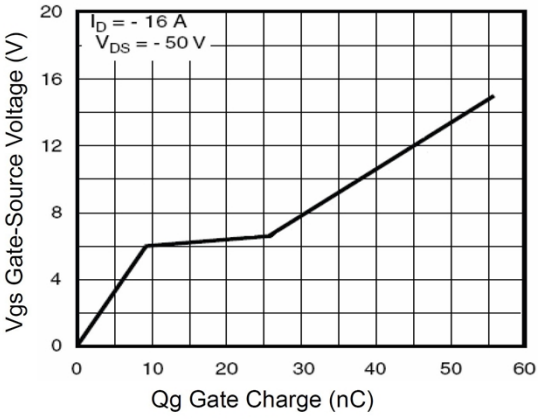
Output Characteristics



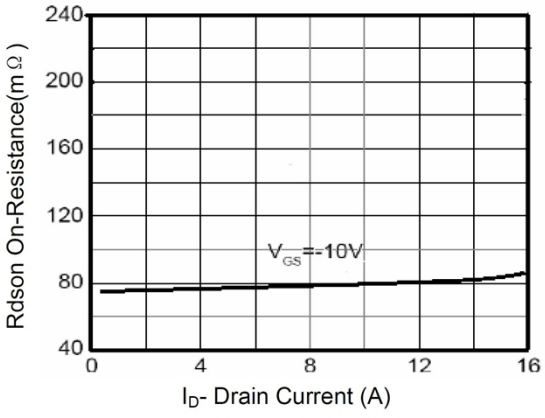
Rdson-JunctionTemperature



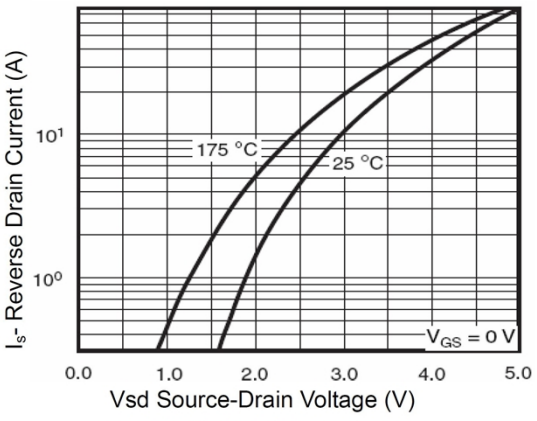
Transfer Characteristics



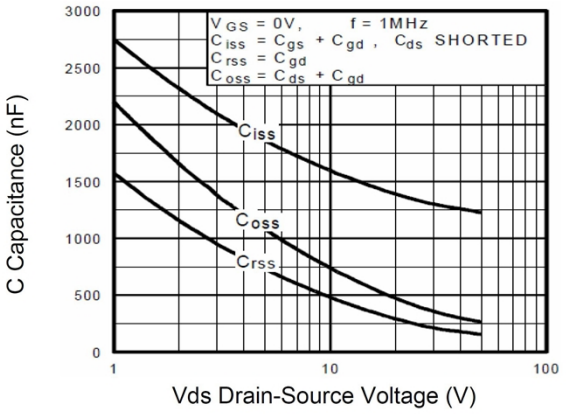
Gate Charge



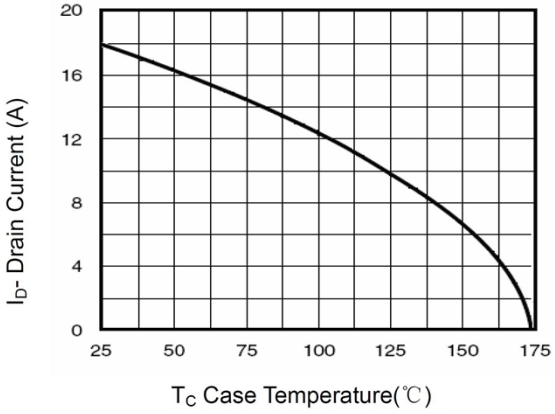
Rdson- Drain Current



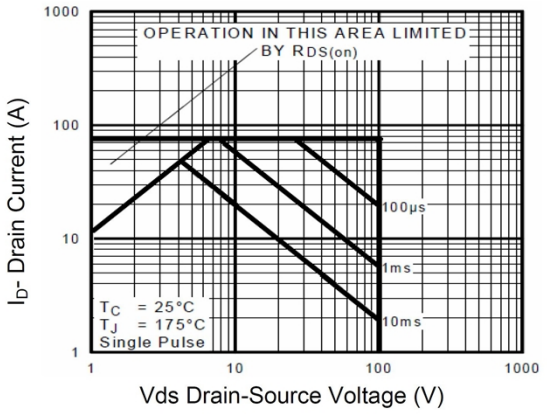
Source- Drain Diode Forward



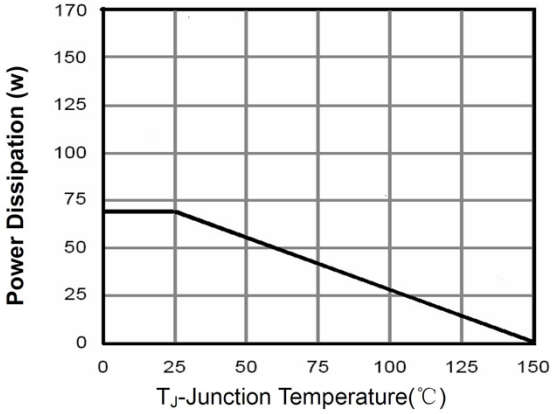
Capacitance vs Vds



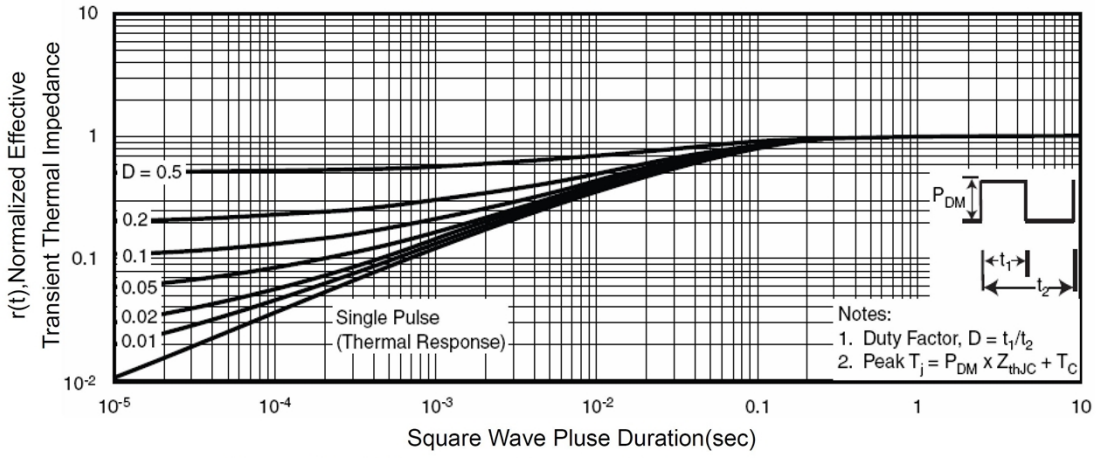
Drain Current vs Case Temperature



Safe Operation Area

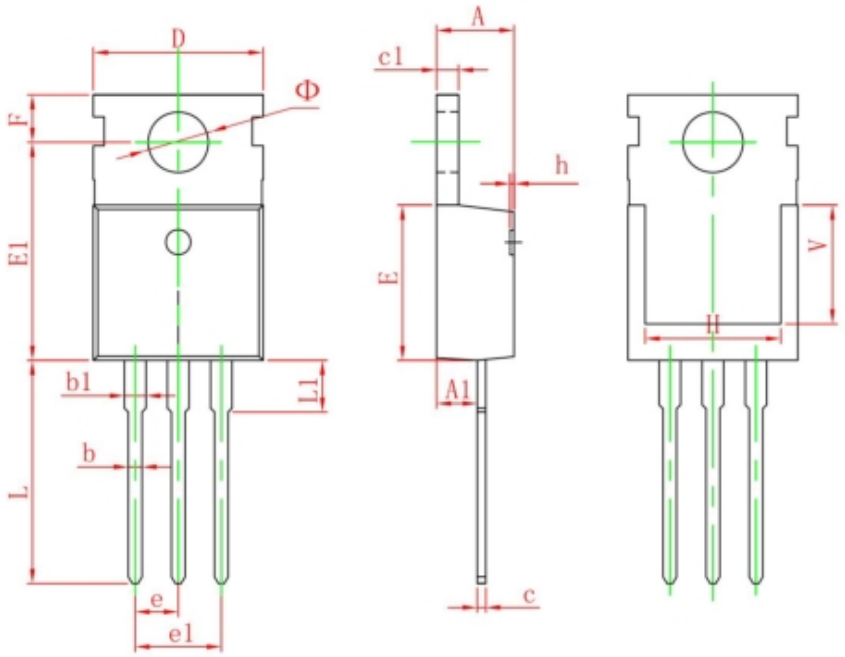


Power De-rating



Normalized Maximum Transient Thermal Impedance

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