

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
270V	70mΩ@10V	40A

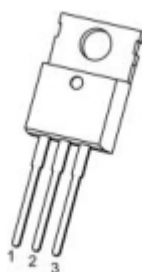
Feature

- Fast Switching
- Low Gate Charge and Rdson
- 100% Single Pulse avalanche energy Test

Application

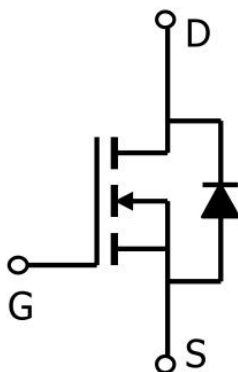
- DC-DC Converter
- Ideal for high-frequency switching and synchronous rectification

Package

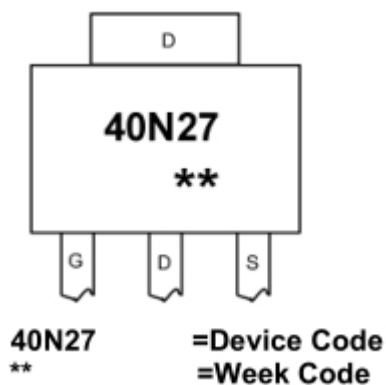


TO-220-3L-C(1:G 2:D 3:S)

Circuit diagram



Marking



Absolute maximum ratings

(T_a=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	270	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current ¹ (T _C =25°C)	I _D	40	A
Pulsed Drain Current ²	I _{DM}	160	A
Single Pulse Avalanche Energy ³	E _{AS}	1049	A
Total Power Dissipation(T _C =25°C)	P _D	190	W
Thermal Resistance Junction-Case ¹	R _{θJC}	0.65	°C/ W
Storage Temperature Range	T _{STG}	-55 to 150	°C
Operating Junction Temperature Range	T _J	-55 to 150	°C

Electrical characteristics

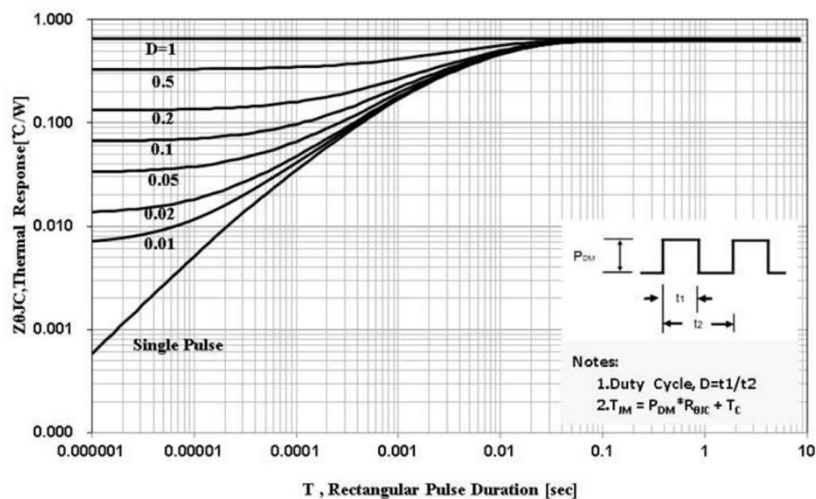
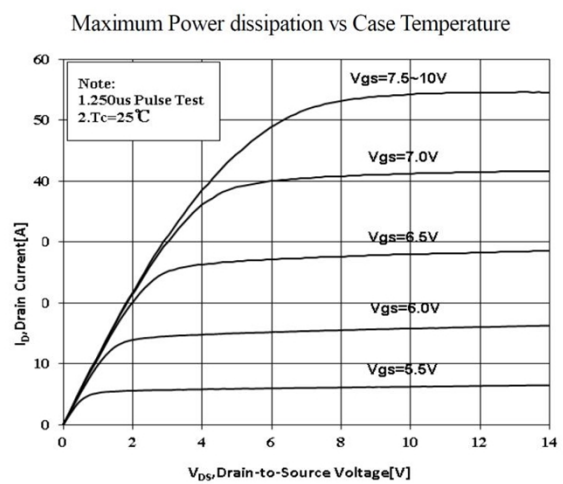
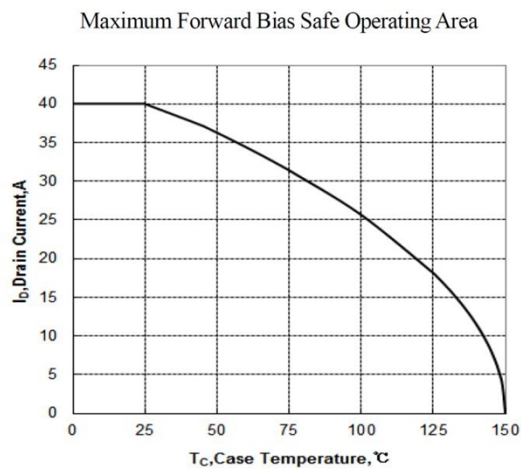
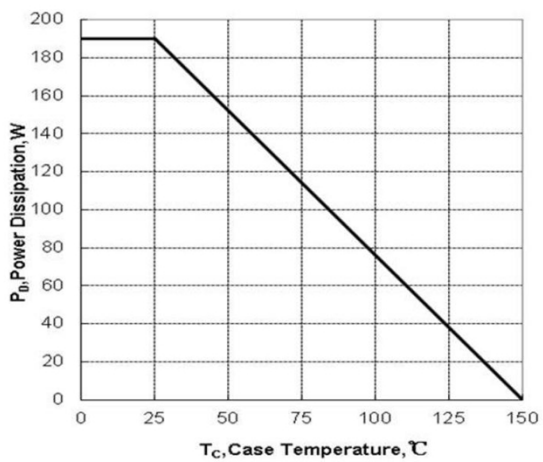
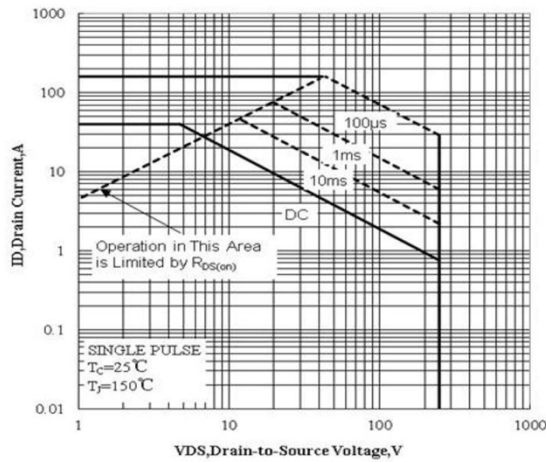
($T_A=25^{\circ}\text{C}$, unless otherwise noted)

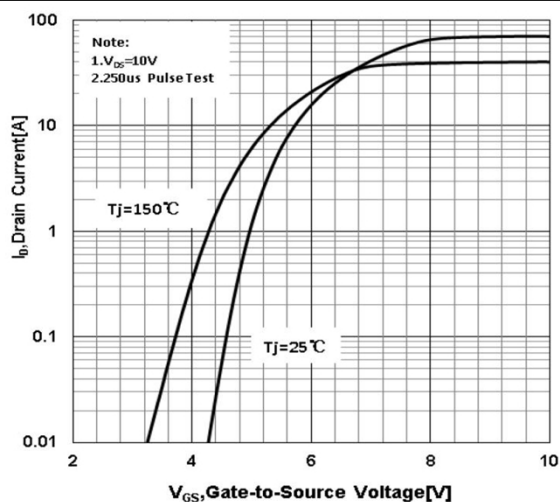
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV (BR)DSS	V _{GS} = 0V, I _D =250μA	270			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =200V,V _{GS} = 0V , T _J =25℃			1	uA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V , V _{DS} =0V			±100	uA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2	3	4	V
Static Drain-Source on-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =22.5A		70	88	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1MHz		2516		pF
Output Capacitance	C _{oss}			338		
Reverse Transfer Capacitance	C _{rss}			23		
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} =200V, V _{GS} =10V, I _D =40A		46		pF
Gate-Source Charge	Q _{gs}			17		
Gate-Drain Charge	Q _{gd}			20		
Turn-On Delay Time	T _{d(on)}	V _{DS} =125V, V _{GS} =10V, R _G =10Ω, I _D =40A		31		nS
Rise Time	T _r			152		
Turn-Off Delay Time	T _{d(off)}			49		
Fall Time	T _f			20		

Note:

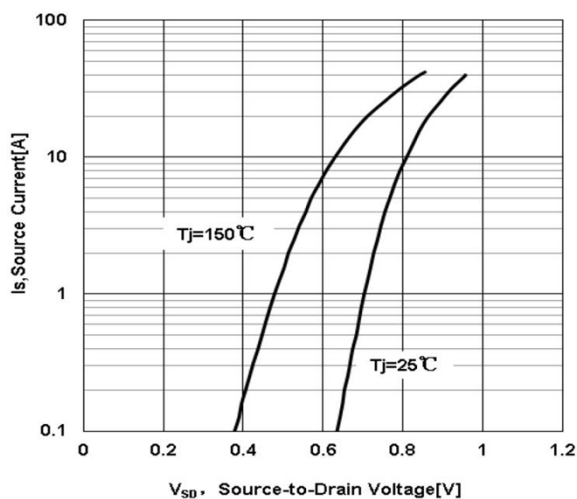
1. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
2. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
3. The EAS data shows Max. rating . The test condition is $R_G = 30\Omega, L = 10\text{mH}$

Typical Characteristics

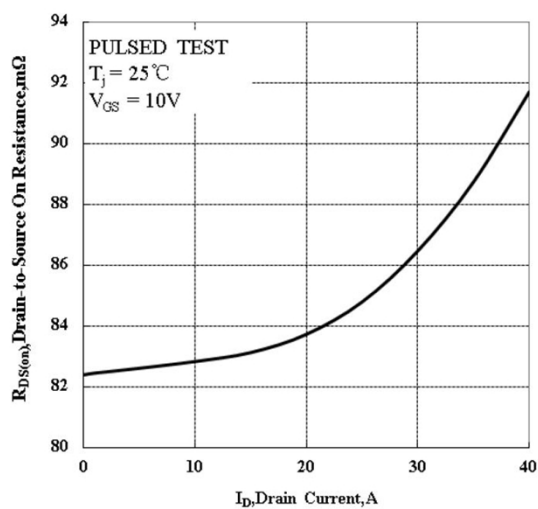




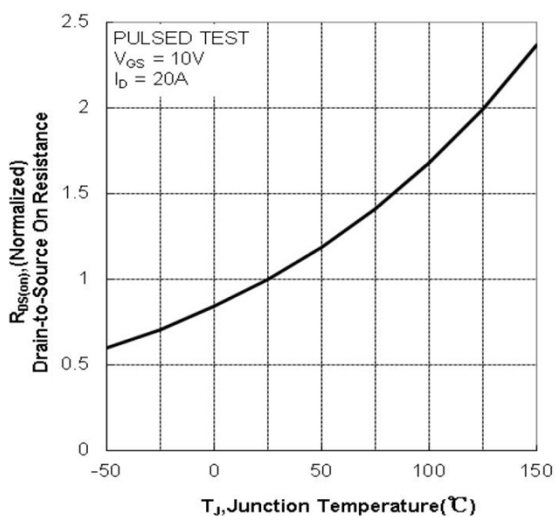
Typical Transfer Characteristics



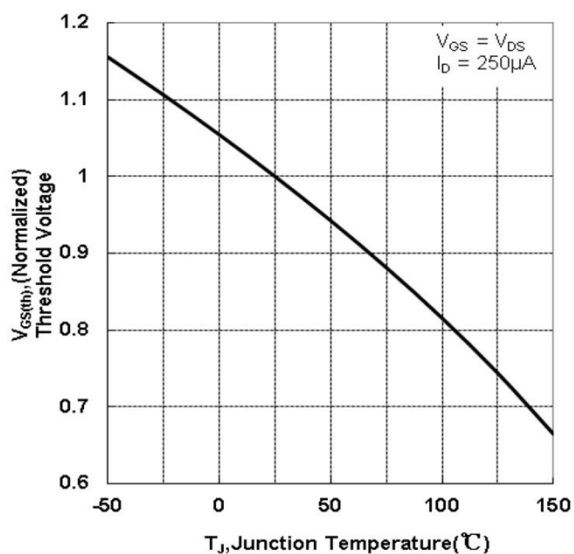
Typical Body Diode Transfer Characteristics



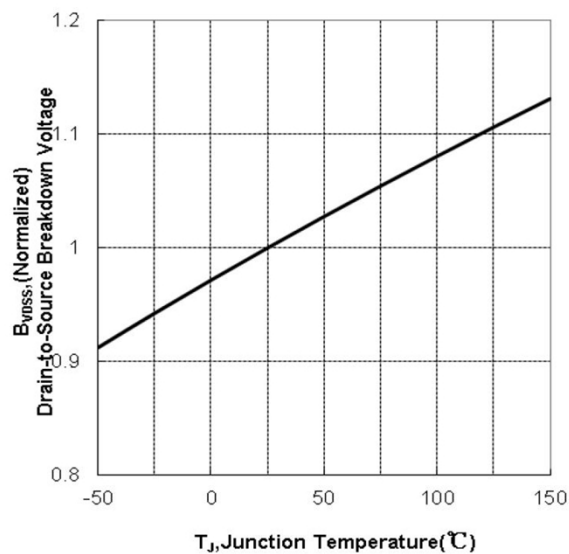
Typical Drain to Source ON Resistance
vs Drain Current



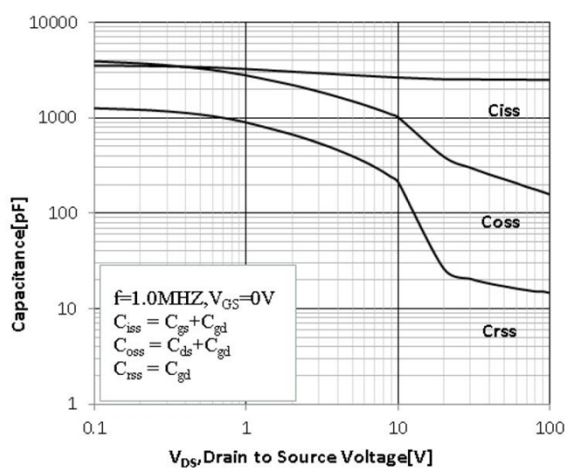
Typical Drian to Source on Resistance
vs Junction Temperature



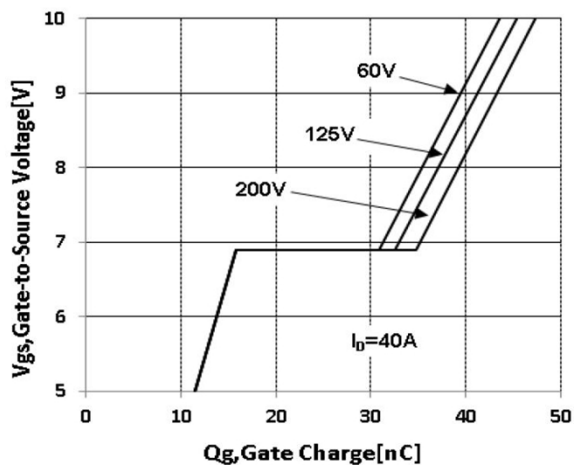
Typical Theshold Voltage vs Junction Temperature



Typical Breakdown Voltage vs Junction Temperature

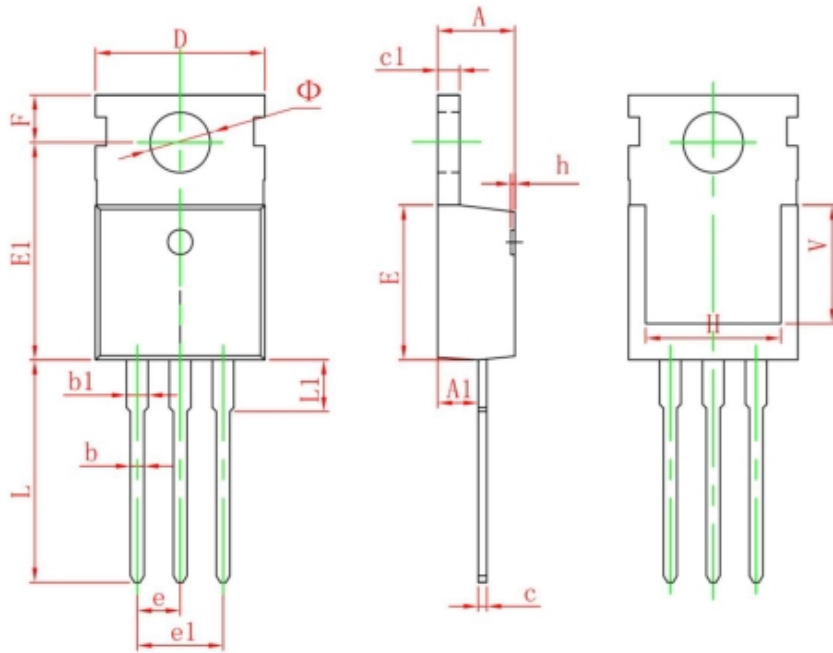


Typical Capacitance vs Drain to Source Voltage



Typical Gate Charge vs Gate to Source Voltage

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