

Product Summary

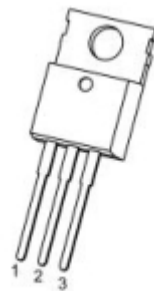
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-30V	3.4mΩ@-10V	-120A
	4.8mΩ@-4.5V	

Feature

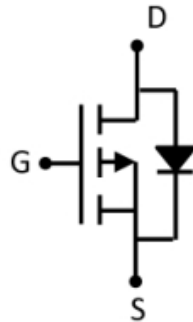
- High switching speed
- Low Gate Charge
- High density cell design for ultra low Rdson
- 100% Single Pulse avalanche energy Test

Application

- Load Switching
- DC-DC

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

Circuit diagram



Marking



30P03 =Device Code
****** =Week Code

Absolute maximum ratings

(T_a=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-30	V
Gate-Source Voltage	V _{GS}	±20	V
Drain Current-Continuous(T _C =25°C)	I _D	-120	A
Pulsed Drain Current	I _{DM}	-480	A
Single Pulse Avalanche Energy ¹	E _{AS}	306	mJ
Maximum Power Dissipation(T _C =25°C)	P _D	89	W
Thermal Resistance,Junction-to-Case	R _{θJC}	1.4	°C/W
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55~+150	°C

Electrical characteristics

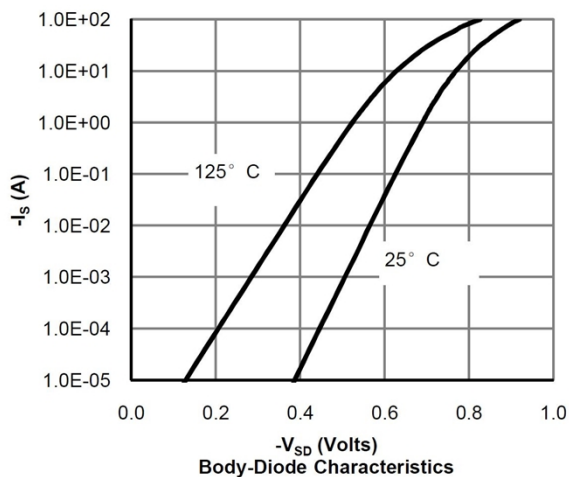
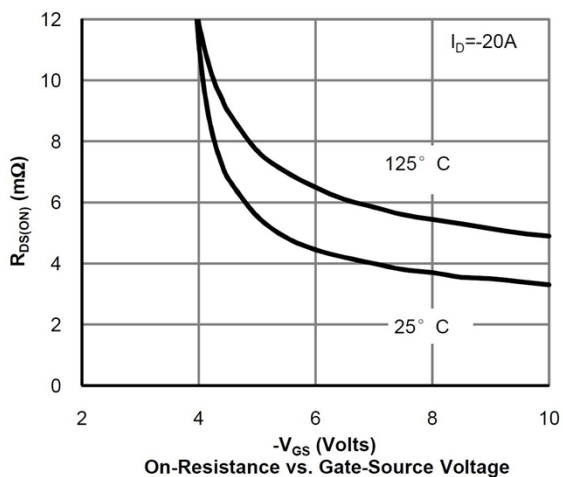
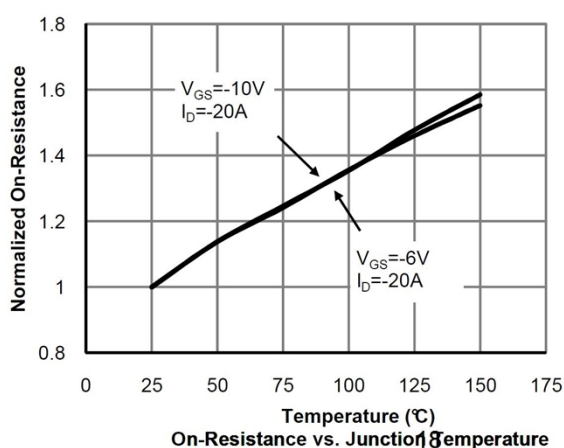
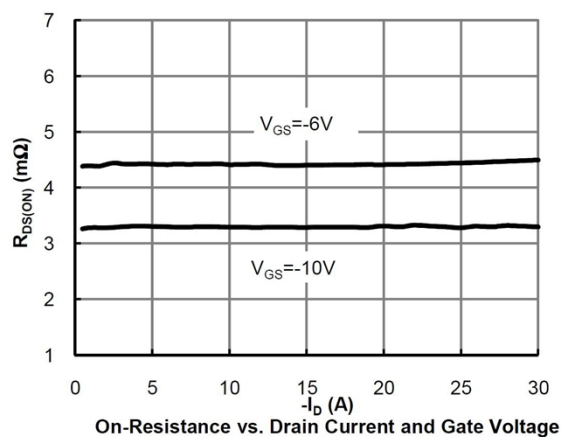
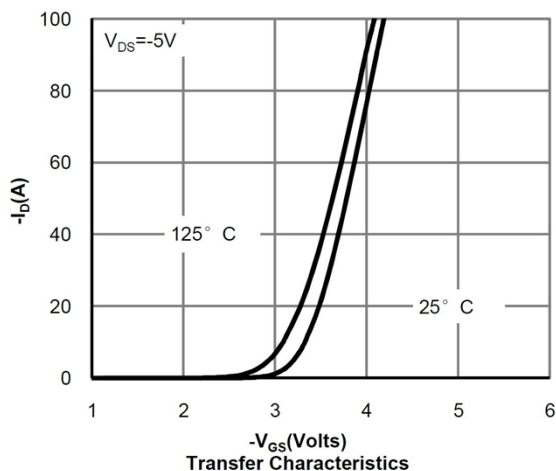
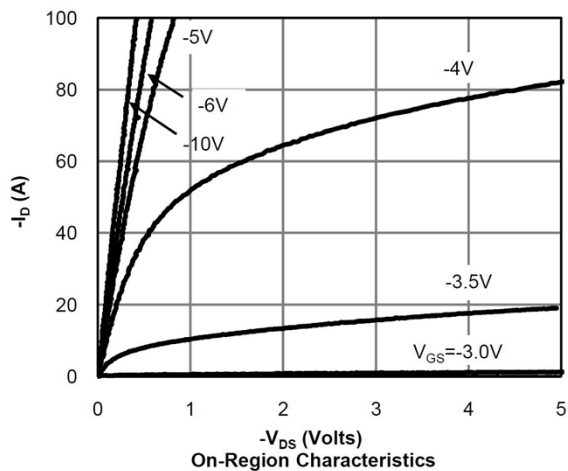
($T_A=25^{\circ}\text{C}$, unless otherwise noted)

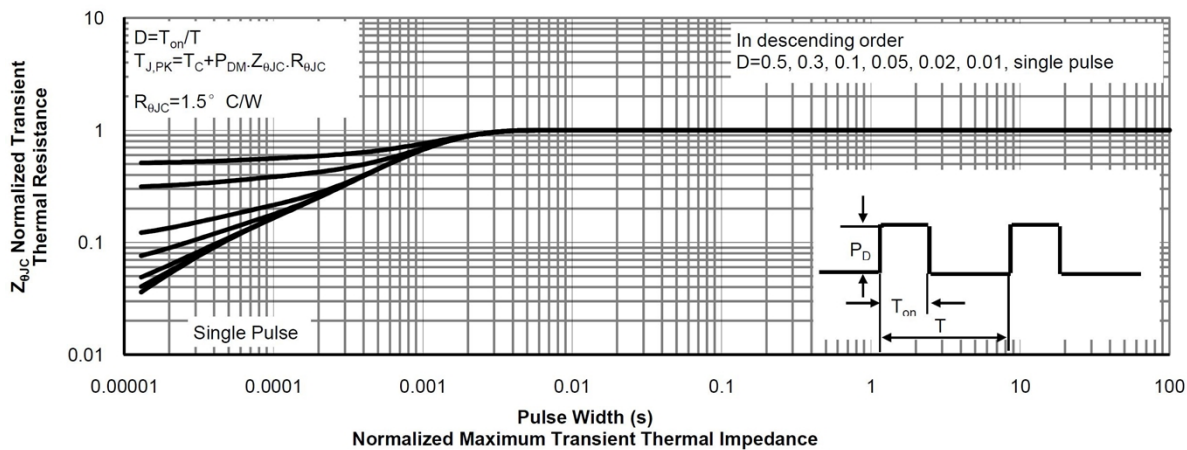
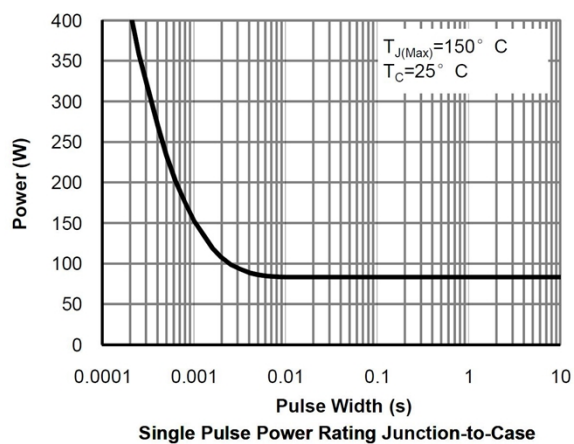
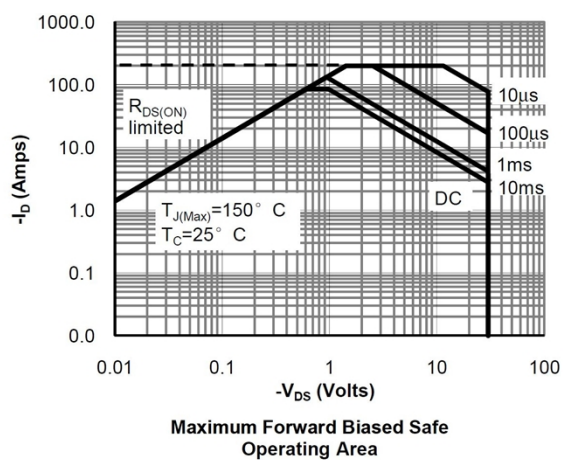
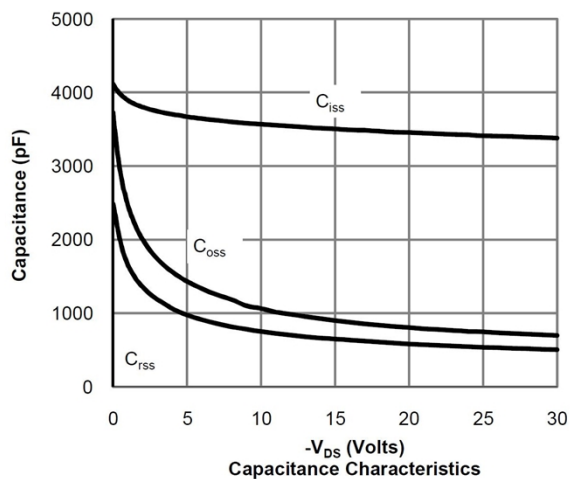
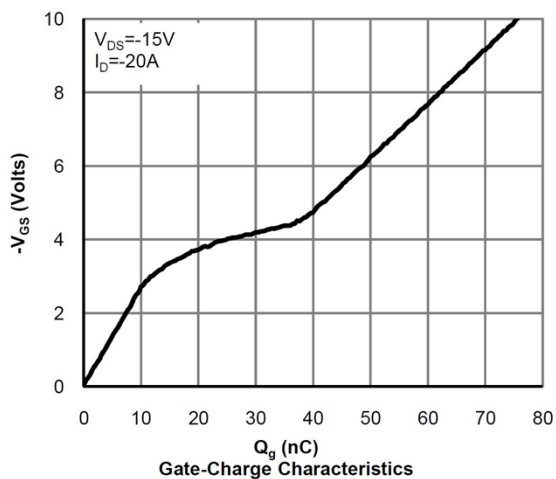
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV (BR)DSS	V _{GS} = 0V, I _D = -250μA	-30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -24V, V _{GS} = 0V			-1	uA
Gate-Source Leakage	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	uA
Gate-Source Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1	-1.6	-2.5	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = -10V, I _D = -30A		3.4	4.3	mΩ
		V _{GS} = -4.5V, I _D = -20A		4.8	6.4	
Dynamic Characteristics						
Input Capacitance	C _{iSS}	V _{DS} = -15V, V _{GS} = 0V, f = 1MHz		5700		pF
Output Capacitance	C _{oSS}			859		
Reverse Transfer Capacitance	C _{rSS}			650		
Switching Characteristics						
Total Gate Charge	Q _g	V _{DD} = -15V, V _{GS} = -10V, I _D = -20A		75		nC
Gate-Source Charge	Q _{gs}			13		
Gate-Drain Charge	Q _{gd}			23		
Turn-on Delay Time	T _{d(on)}	V _{DD} = -15V, R _L = 0.75Ω, V _{GEN} = -10V, R _{GEN} = 3Ω		14		nS
Turn-on Rise Time	T _r			16		
Turn-off Delay Time	T _{d(off)}			94		
Turn-off Fall Time	T _f			75		
Drain-Source Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} = 0V, I _S = -1A			-1	V

Note:

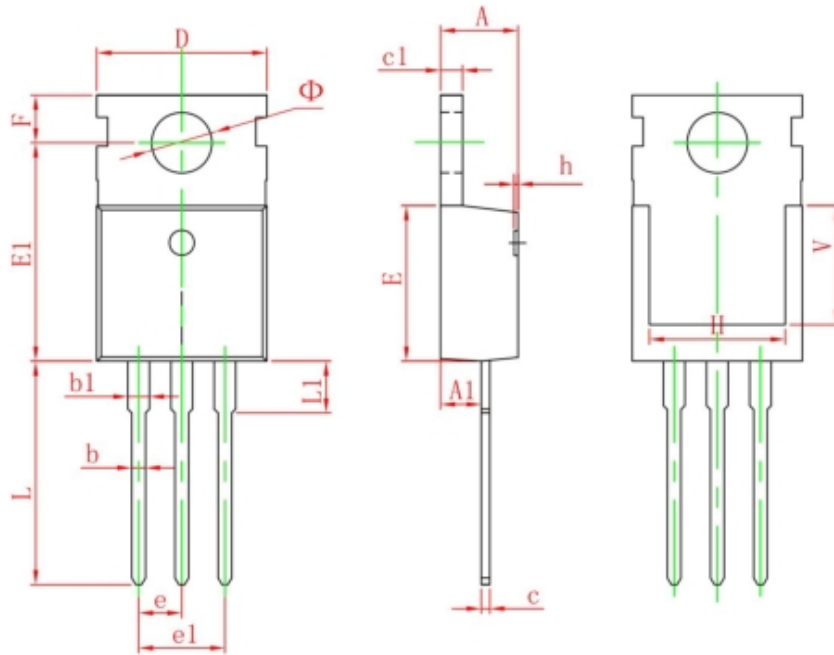
1. The E_{AS} data shows Max. rating . The test condition is $V_{DD} = -15V, V_{GS} = -10V, L = 0.5mH, R_g = 25\Omega$

Typical Characteristics





TO-252 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