AT130SN060MTC

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	3.8mΩ@10V	130A

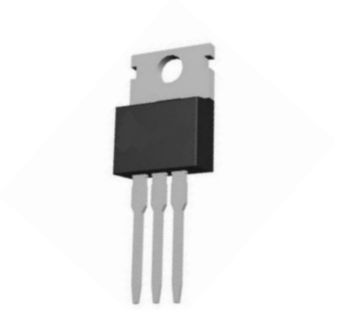
Feature

- Fast Switching
- Low Gate Charge and R_{dson}

Application

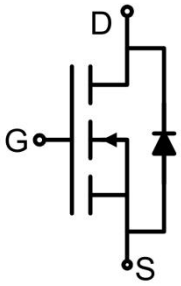
- Power switching application
- DC/DC Converter
- Power Management

Package

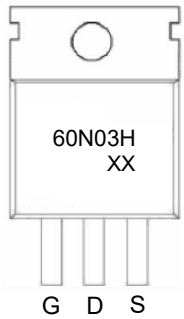


TO-220AB

Circuit diagram



Marking



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N-Channel Enhancement Mode MOSFET

Absolute maximum ratings(T_A=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (T_C=25℃)	I_D	130	A
Continuous Drain Current (T_C=100℃)	I_D (100℃)	87	A
Pulsed Drain Current	I_{DM}	520	A
Single Pulse Avalanche Energy[1)]	E_{AS}	756	mJ
Power Dissipation (T_C=25℃)	P_D	220	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	0.57	℃/W
Operating Junction Temperature	T_J	-55 ~ +150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

Electrical characteristics (T_A =25℃, unless otherwise noted)

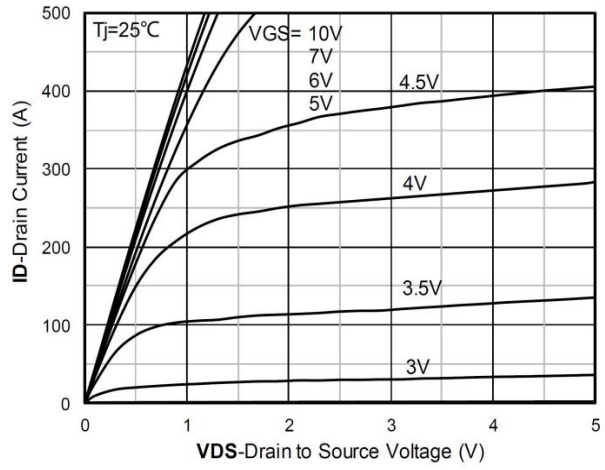
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} =0V, I_D =250μA	60			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =48V, V_{GS} =0V, T_J=25℃			1	μA
Gate-body leakage current	I_{GSS}	V_{DS} =0V, V_{GS} =±20V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2	3	4	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =75A		3	3.8	mΩ
Dynamic characteristics[2)]						
Input Capacitance	C_{iss}	V_{DS} =30V, V_{GS} =0V, f =1MHz		7520		pF
Output Capacitance	C_{oss}			587		
Reverse Transfer Capacitance	C_{rss}			433		
Total Gate Charge	Q_g	V_{DS} =30V, V_{GS} =10V, I_D =75A		154		nC
Gate-Source Charge	Q_{gs}			38		
Gate-Drain Charge	Q_{gd}			51		
Turn-on delay time	$t_{d(on)}$	V_{DS} =30V, V_{GS} =10V, I_D =20A R_G =3Ω		25		nS
Turn-on rise time	t_r			23		
Turn-off delay time	$t_{d(off)}$			90		
Turn-off fall time	t_f			38		
Source-Drain Diode characteristics						
Diode Continuous Current	I_S				130	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S =1A			1.2	V
Reverse recover time	T_{rr}	I_S =20A, di/dt =100A/μs T_J= 25°C		51		nS
Reverse recovery charge	Q_{rr}			76		nC

Notes:

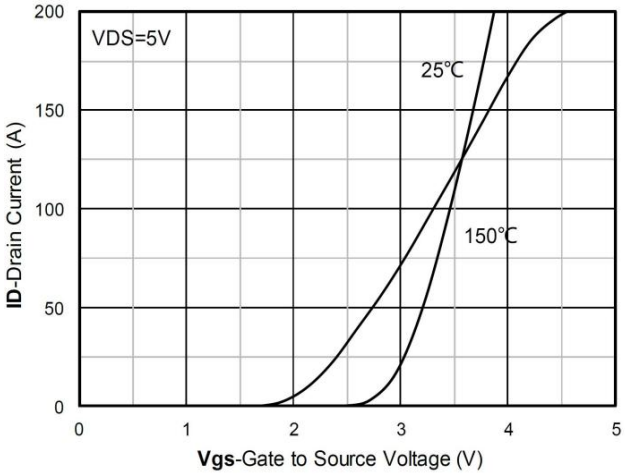
1) The test condition is V_{DD}=50V, V_{GS} =10V, L = 0.5mH, Rg=25Ω.

2) Guaranteed by design, not subject to production testing.

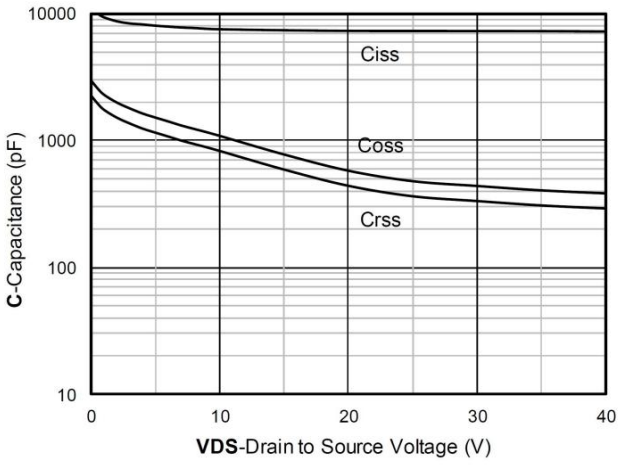
Typical Characteristics



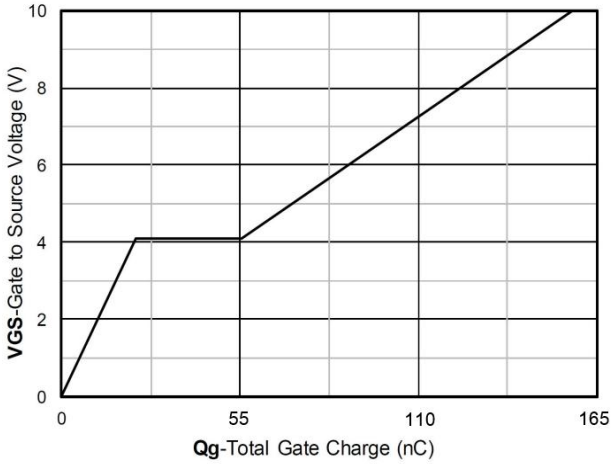
Output Characteristics



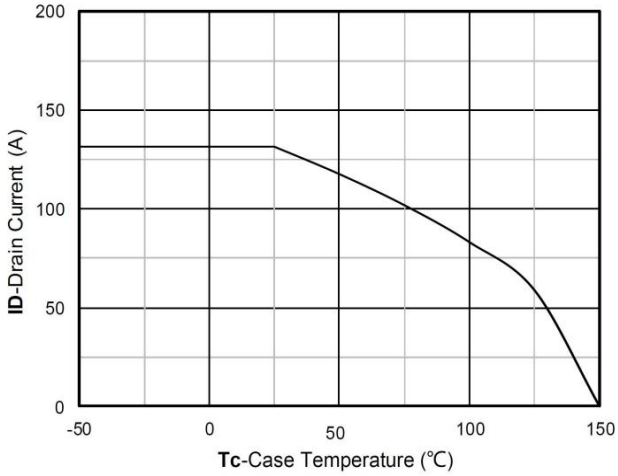
Transfer Characteristics



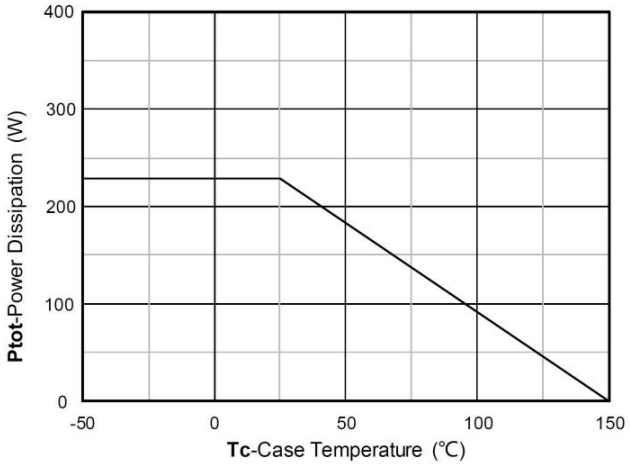
Capacitance Characteristics



Gate Charge

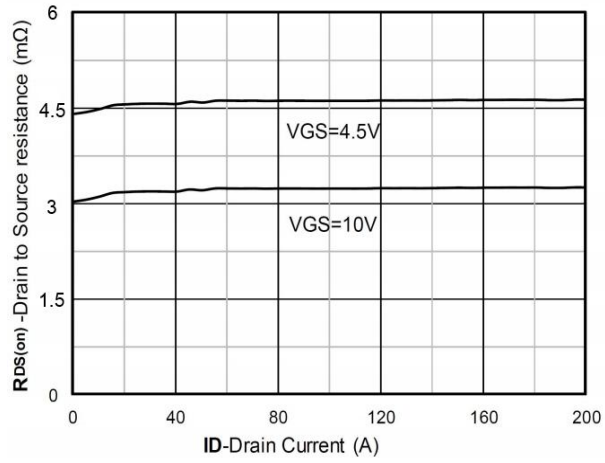


Current dissipation

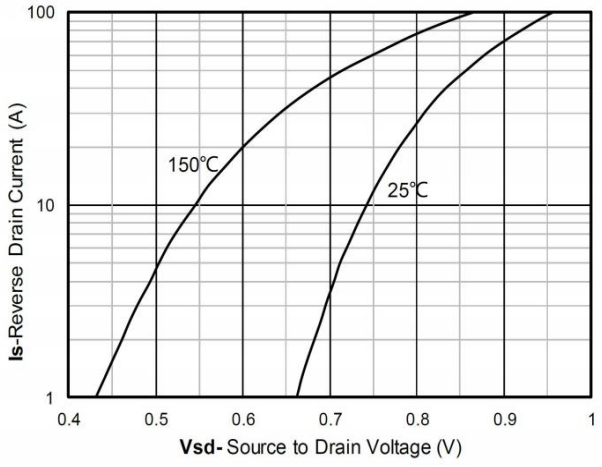


Power dissipation

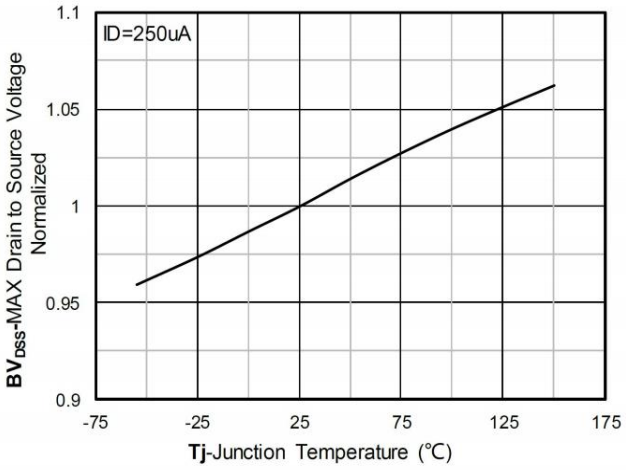
Typical Characteristics



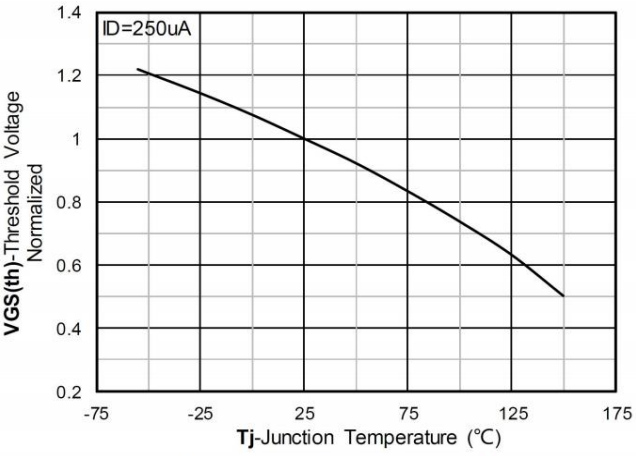
RDS(on) VS Drain Current



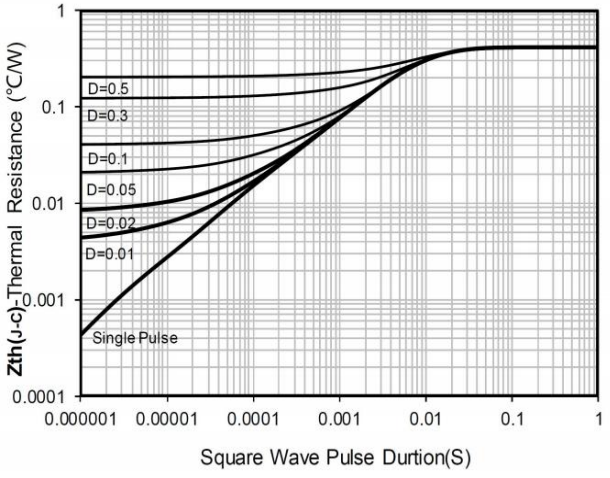
Forward characteristics of reverse diode



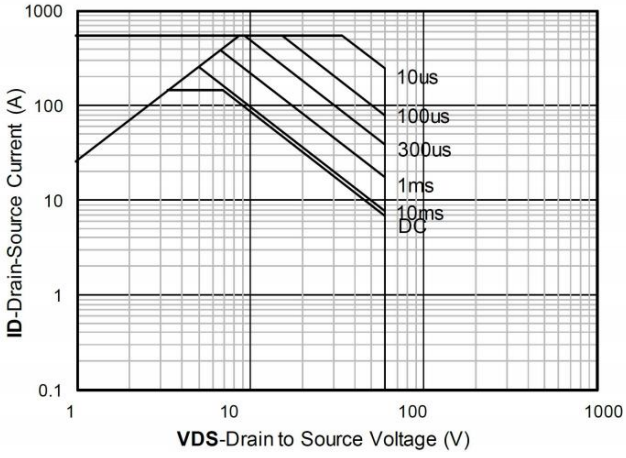
Normalized breakdown voltage



Normalized Threshold voltage

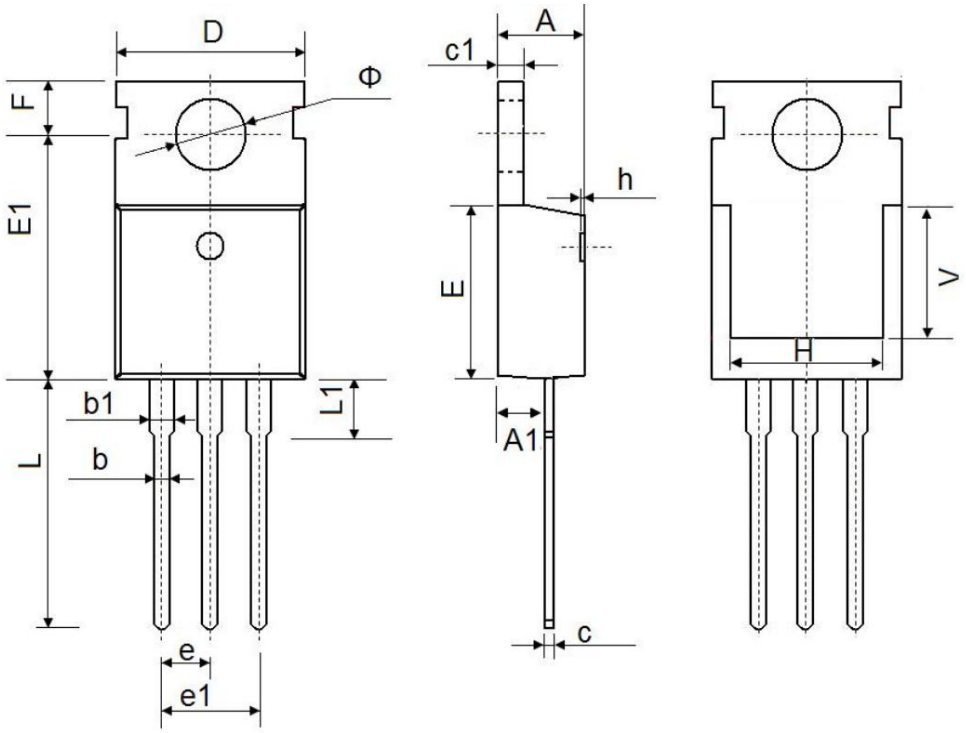


Maximum Transient Thermal Impedance



Safe Operation Area

TO-220AB 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	0.510
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