

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
150V	16mΩ@10V	55A

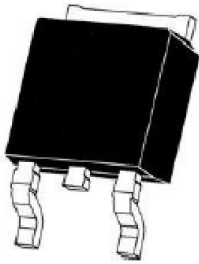
Feature

- Low $R_{DS(on)}$ & FOM
- Extremely low switching loss
- Excellent stability and uniformity
- Fast switching and soft recovery

Application

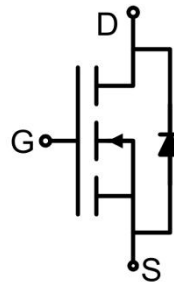
- Consumer electronic power supply
- Motor control Synchronous rectification
- Isolated DC/DC Converter
- Inverters

Package

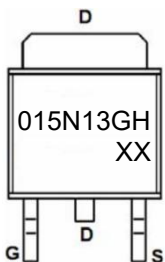


TO-252AB

Circuit diagram



Marking



Absolute maximum ratings (Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹⁾ (T _C =25°C)	I_D	55	A
Pulsed Drain Current ²⁾ (T _C =25°C)	I_{DM}	220	A
Power Dissipation ³⁾ (T _C =25°C)	P_D	165	W
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.75	°C/W
Single pulse avalanche energy ⁴⁾	E_{AS}	480	mJ
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55 ~ +150	°C

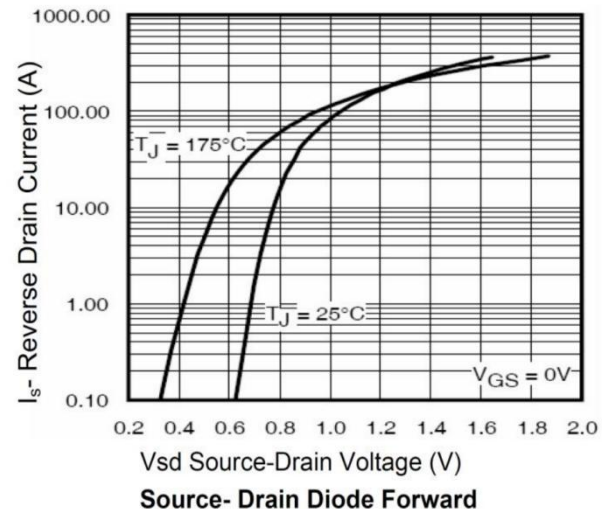
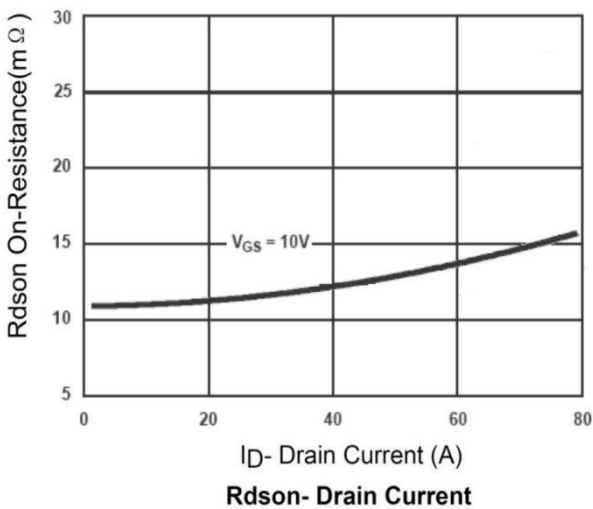
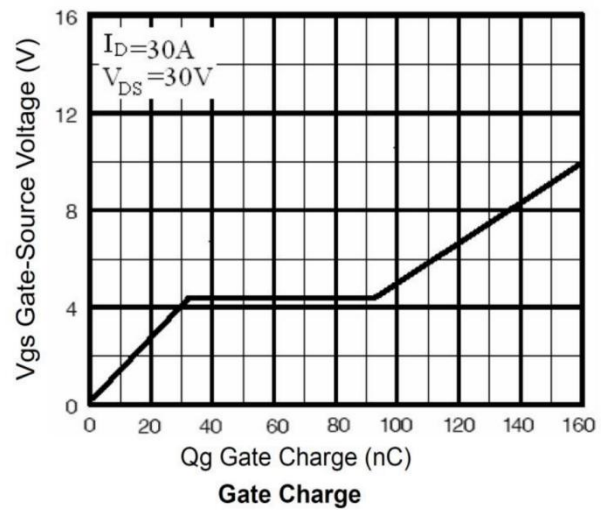
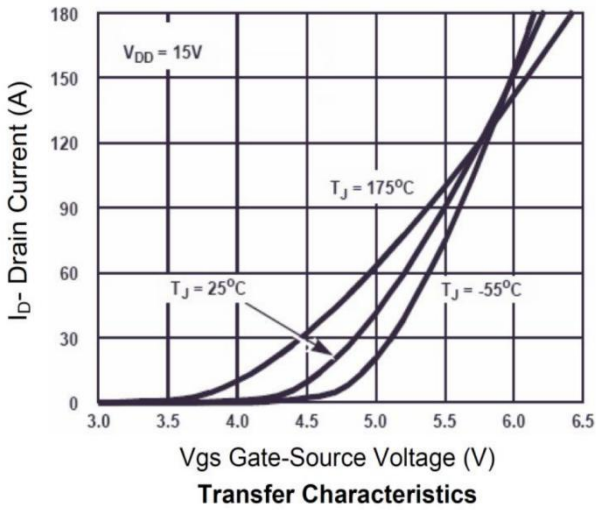
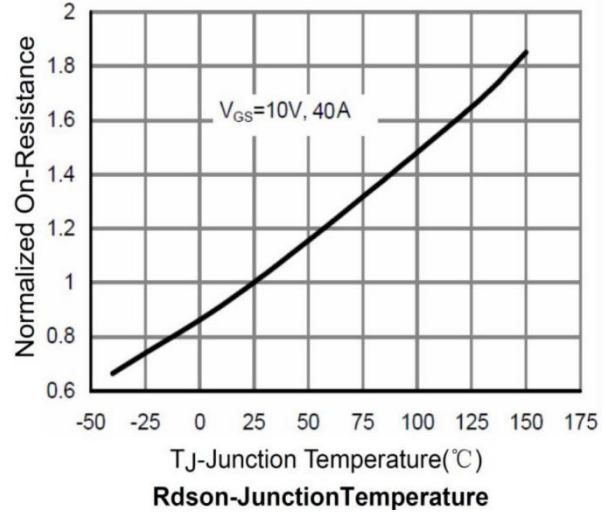
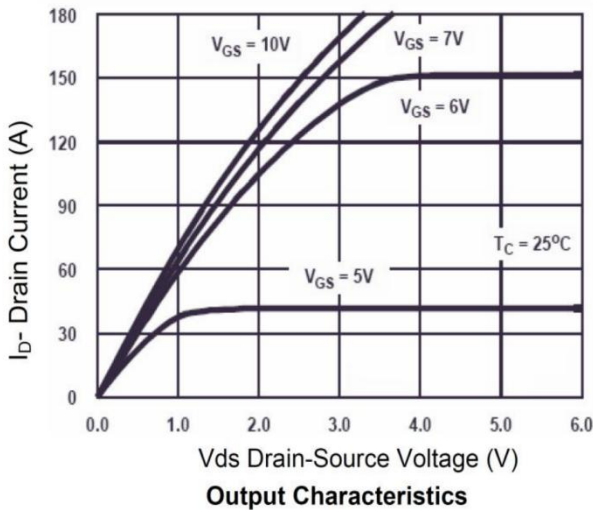
Electrical characteristics (Ta=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	150			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 120V, V_{GS} = 0V$			1.0	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V$			± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2	3	4	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 20A$		13	16	m Ω
Dynamic characteristics⁵⁾						
Input Capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V, f = 1MHz$		6998		pF
Output Capacitance	C_{oss}			422		
Reverse Transfer Capacitance	C_{rss}			22		
Total Gate Charge	Q_g	$V_{DS} = 30V, V_{GS} = 10V, I_D = 30A$		160		nC
Gate-Source Charge	Q_{gs}			36		
Gate-Drain Charge	Q_{gd}			68		
Turn-on delay time	$t_{d(on)}$	$V_{DS} = 30V, V_{GS} = 10V, I_D = 2A, R_G = 2.5\Omega$		22.1		nS
Turn-on rise time	t_r			5.2		
Turn-off delay time	$t_{d(off)}$			44		
Turn-off fall time	t_f			8.4		
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	$V_{GS} = 0V, I_S = 1A$			1.2	V
Reverse recovery time	t_{rr}	$I_S = 12A, di/dt = 100A/\mu S$		102.9		nS
Reverse recovery charge	Q_{rr}			379		nC
Peak reverse recovery current	I_{rrm}			6.4		A

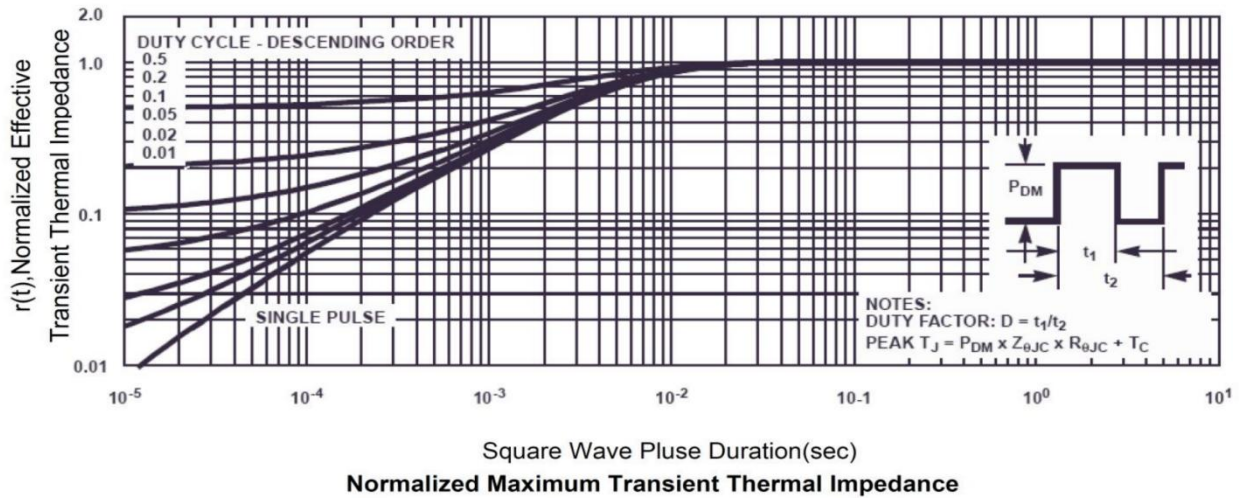
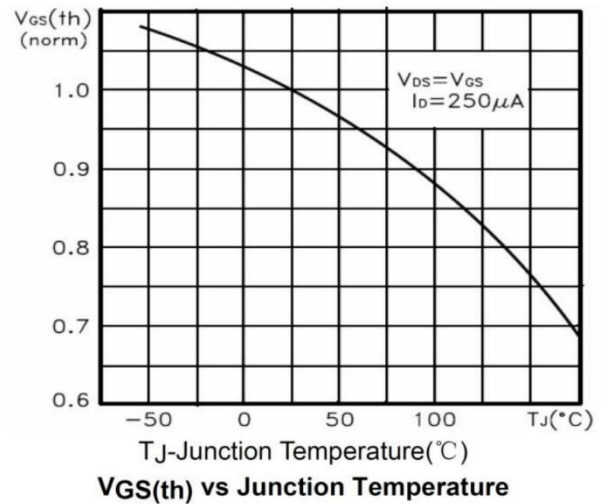
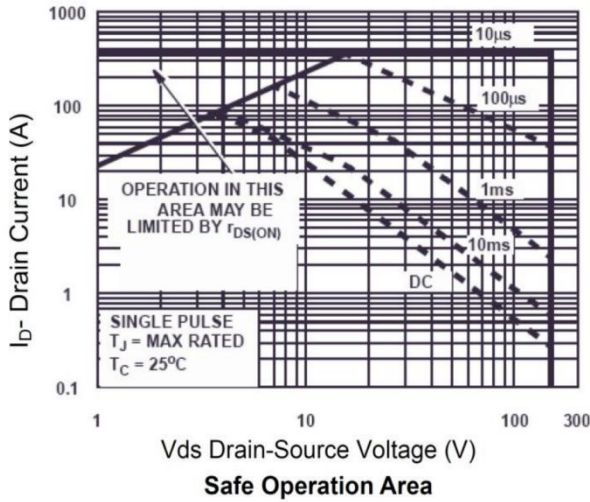
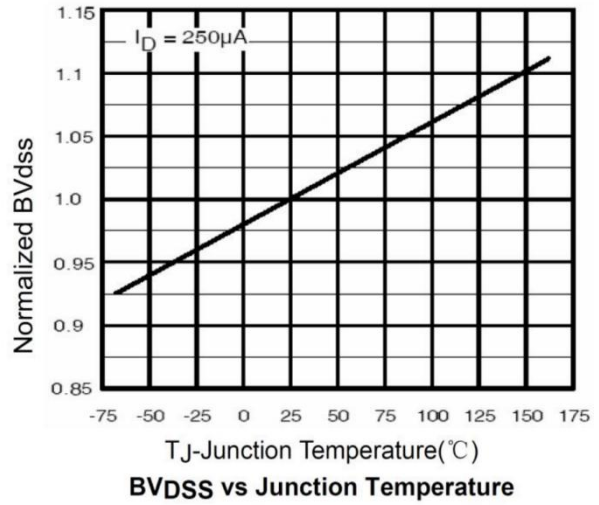
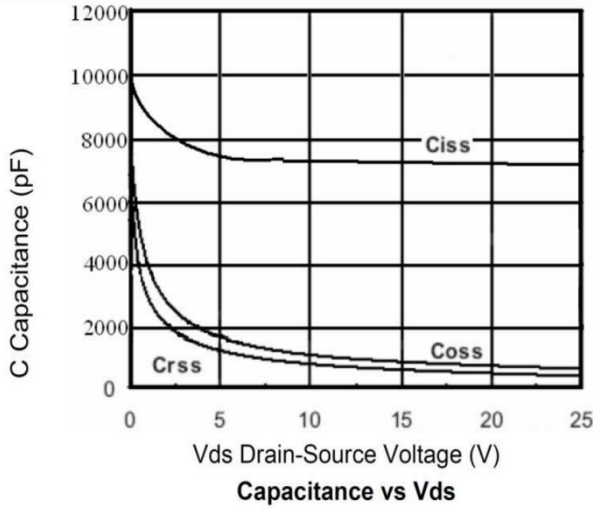
Notes:

- 1) Calculated continuous current based on maximum allowable junction temperature.
- 2) Repetitive rating; pulse width limited by max. junction temperature.
- 3) P_D is based on max. junction temperature, using junction-case thermal resistance.
- 4) $V_{DD} = 50V, V_{GS} = 10V, R_G = 25\Omega, L = 0.5mH$, starting $T_J = 25^\circ C$.
- 5) Guaranteed by design, not subject to production.

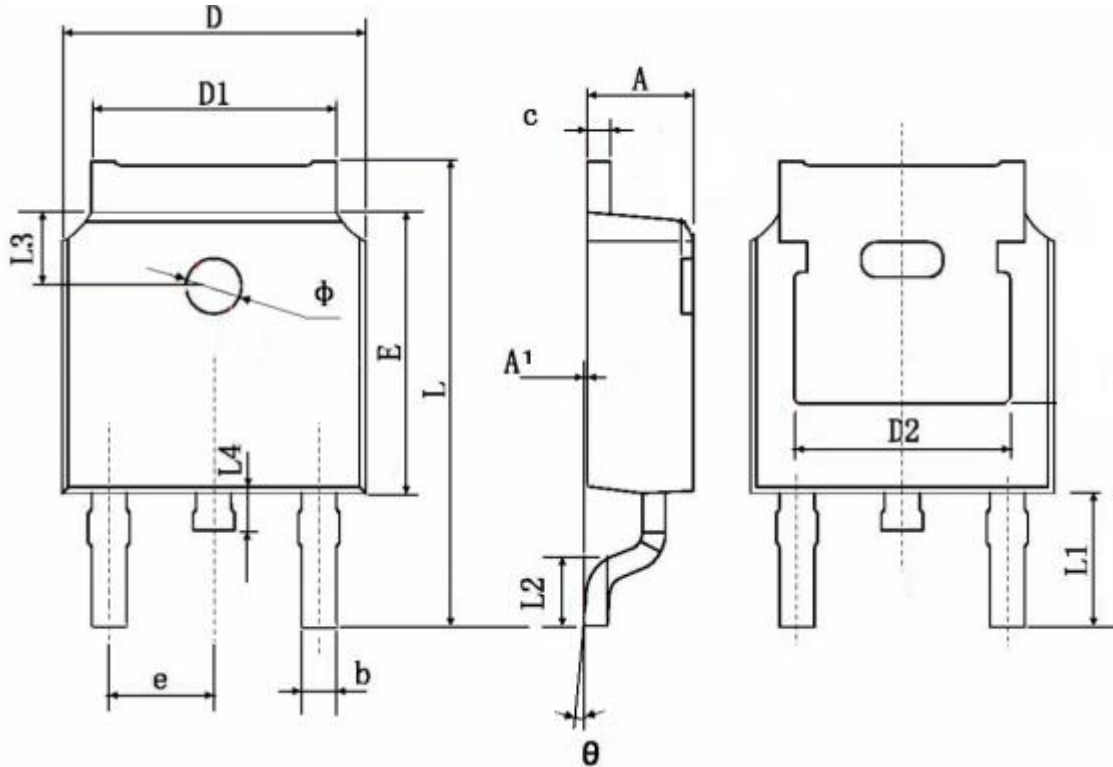
Typical Characteristics



Typical Characteristics



TO-252AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.130	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.500	0.201	0.217
D2	4.830 REF		0.190 REF	
E	6.000	6.200	0.236	0.244
e	2.186	2.390	0.086	0.094
L	9.800	10.500	0.386	0.413
L1	2.900 REF		0.114 REF	
L2	1.400	1.800	0.055	0.070
L3	1.600 REF		0.063 REF	
L4	0.600	1.000	0.024	0.039
ϕ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°