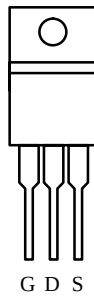


N-Channel Enhancement-Mode Transistor

Product Summary

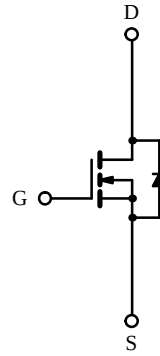
$V_{(BR)DSS}$ (V)	$r_{DS(on)}$ (Ω)	I_D (A)
100	0.040	40

TO-220AB



Top View

DRAIN connected to TAB



N-Channel MOSFET

Absolute Maximum Ratings ($T_C = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current	$T_C = 25^\circ\text{C}$	I_D	40	A
	$T_C = 100^\circ\text{C}$		25	
Pulsed Drain Current		I_{DM}	160	
Avalanche Current		I_{AR}	40	
Avalanche Energy		E_A	240	mJ
Repetitive Avalanche Energy ^a		E_{AR}	40	
Power Dissipation	$T_C = 25^\circ\text{C}$	P_D	125	W
	$T_C = 100^\circ\text{C}$		60	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^\circ\text{C}$
Lead Temperature ($1/16''$ from case for 10 sec.)		T_L	300	

Thermal Resistance Ratings

Parameter	Symbol	Typical	Maximum	Unit
Junction-to-Ambient	R_{thJA}		80	$^\circ\text{C/W}$
Junction-to-Case	R_{thJC}		1.0	
Case-to-Sink	R_{thCS}	1.0		

Notes:

a. Duty cycle $\leq 1\%$

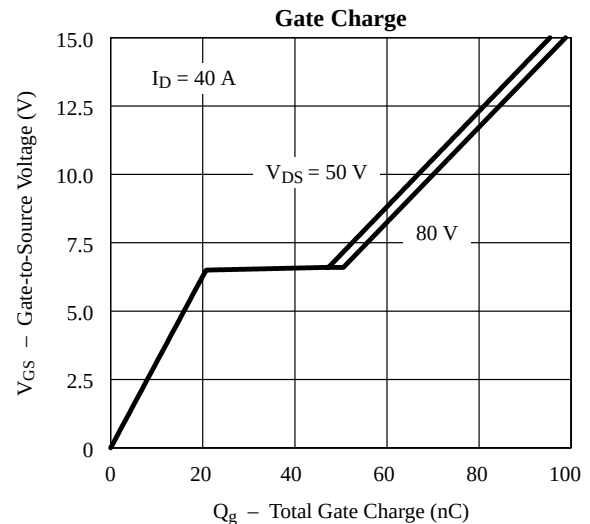
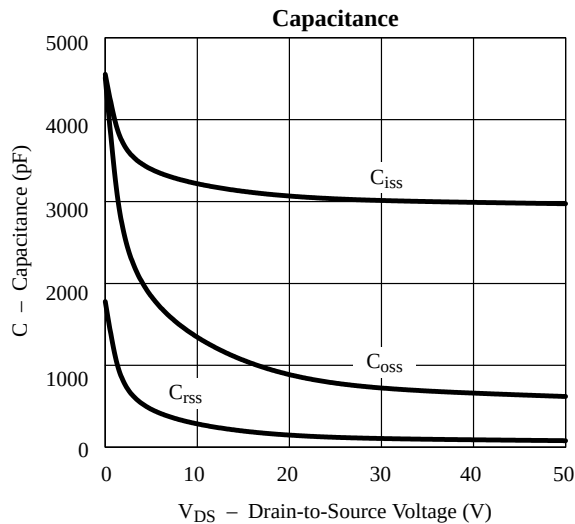
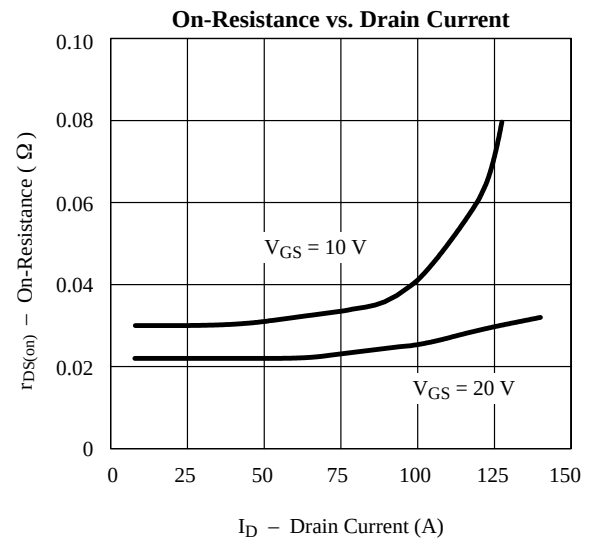
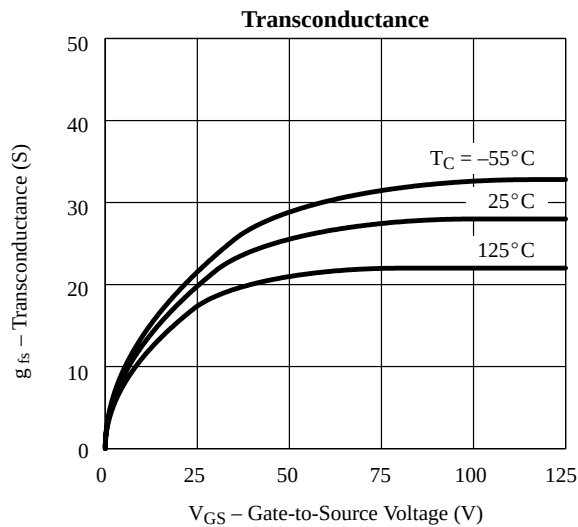
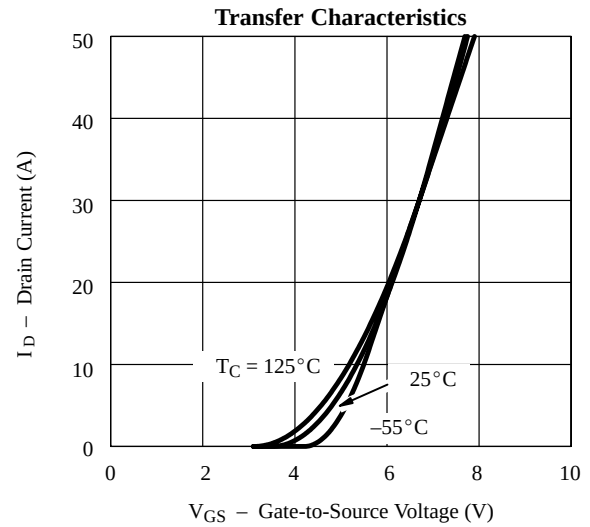
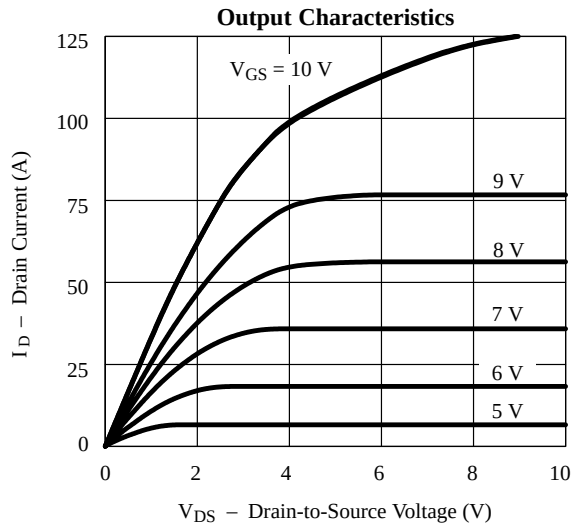
Specifications ($T_J = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Test Condition	Min	Typ ^a	Max	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = 250 μA	100			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	2.0		4.0	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ± 20 V			± 100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 80 V, V _{GS} = 0 V			25	μA
		V _{DS} = 80 V, V _{GS} = 0 V, T _J = 125°C			250	
On-State Drain Current ^b	I _{D(on)}	V _{DS} = 5 V, V _{GS} = 10 V	40			A
Drain-Source On-State Resistance ^b	r _{DS(on)}	V _{GS} = 10 V, I _D = 25 A		0.030	0.040	Ω
		V _{GS} = 10 V, I _D = 25 A, T _J = 125°C		0.055	0.072	
Forward Transconductance ^b	g _{fs}	V _{DS} = 15 V, I _D = 25 A	15	20		S
Dynamic						
Input Capacitance	C _{iss}	V _{GS} = 0 V, V _{DS} = 25 V, f = 1 MHz		3000		pF
Output Capacitance	C _{oss}			750		
Reverse Transfer Capacitance	C _{rss}			150		
Total Gate Charge ^c	Q _g	V _{DS} = 50 V, V _{GS} = 10 V, I _D = 40 A		62	80	nC
Gate-Source Charge ^c	Q _{gs}			20	30	
Gate-Drain Charge ^c	Q _{gd}			26	35	
Turn-On Delay Time ^c	t _{d(on)}	V _{DD} = 50 V, R _L = 1.25 Ω I _D ≈ 40 A, V _{GEN} = 10 V, R _G = 5 Ω		17	30	ns
Rise Time ^c	t _r			80	120	
Turn-Off Delay Time ^c	t _{d(off)}			40	60	
Fall Time ^c	t _f			20	40	
Source-Drain Diode Ratings and Characteristics (T _C = 25°C)						
Continuous Current	I _S				40	A
Pulsed Current	I _{SM}				180	
Forward Voltage ^b	V _{SD}	I _F = 40 A, V _{GS} = 0 V			1.8	V
Reverse Recovery Time	t _{rr}			120	250	ns
Reverse Recovery Charge	Q _{rr}			0.3		μC

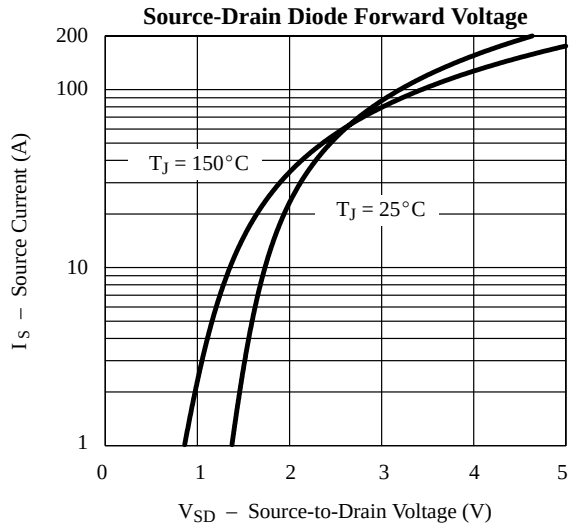
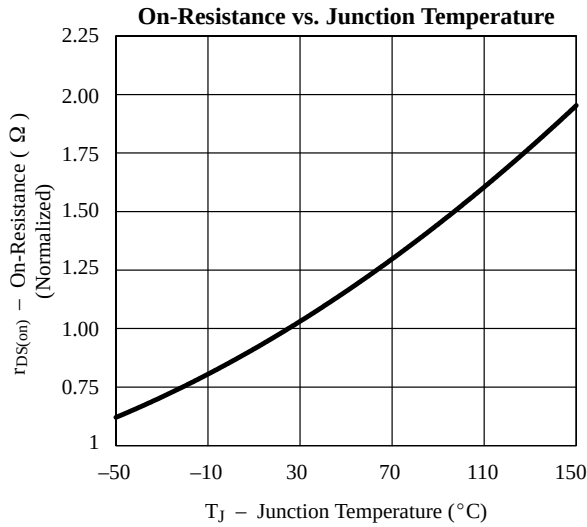
Notes:

- For design aid only; not subject to production testing.
- Pulse test; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.
- Independent of operating temperature.

Typical Characteristics (25°C Unless Otherwise Noted)



Typical Characteristics (25°C Unless Otherwise Noted)



Thermal Ratings

