

General Description

Low $R_{DS(ON)}$
RoHS and Halogen-Free Compliant

Applications

Load switch
PWM

General Features

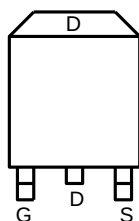
$V_{DS} = 100V$ $I_D = 260A$

$R_{DS(ON)} = 2.0m\Omega$ (typ.) @ $V_{GS} = 10V$

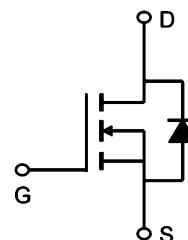
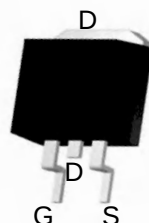
100% UIS Tested

100% R_g Tested

T:TO-263-3L



Marking: G260N10



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

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_C = 25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	260	A
$I_D @ T_C = 100^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	163	A
I_{DM}	Pulsed Drain Current	1028	A
EAS	Single Pulse Avalanche Energy	583	mJ
$P_D @ T_C = 25^\circ C$	Total Power Dissipation	379	W
T_{STG}	Storage Temperature Range	-55 to 175	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 175	$^\circ C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	59	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-Case	---	---	$^\circ C/W$

Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Parameter		Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics							
Drain-Source Breakdown Voltage		V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	100	-	-	V
Gate-body Leakage current		I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V	-	-	±100	nA
Zero Gate Voltage Drain Current	T _J =25°C	I _{DSS}	V _{DS} =100V, V _{GS} = 0V	-	-	1	μA
	T _J =100°C			-	-	100	
Gate-Threshold Voltage		V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	2	3	4	V
Drain-Source on-Resistance ⁴		R _{DS(on)}	V _{GS} = 10V, I _D = 20A	-	2.0	2.9	mΩ
Forward Transconductance ⁴		g _{fs}	V _{DS} =10V, I _D =20A	-	76	-	S
Dynamic Characteristics ⁵							
Input Capacitance		C _{iss}	V _{DS} = 50V, V _{GS} =0V, f =1MHz	-	9030	-	pF
Output Capacitance		C _{oss}		-	1505	-	
Reverse Transfer Capacitance		C _{rss}		-	40	-	
Gate Resistance		R _g	f =1MHz	-	2.3	-	Ω
Switching Characteristics ⁵							
Total Gate Charge		Q _g	V _{GS} = 10V, V _{DS} = 50V, I _D =20A	-	150	-	nC
Gate-Source Charge		Q _{gs}		-	32.5	-	
Gate-Drain Charge		Q _{gd}		-	49	-	
Turn-on Delay Time		t _{d(on)}	V _{GS} =10V, V _{DD} =50V, R _G = 3Ω, I _D = 20A	-	27	-	ns
Rise Time		t _r		-	78.5	-	
Turn-off Delay Time		t _{d(off)}		-	110	-	
Fall Time		t _f		-	86	-	
Body Diode Reverse Recovery Time		t _{rr}	I _F = 20A, dI/dt=100A/μs	-	88	-	ns
Body Diode Reverse Recovery Charge		Q _{rr}		-	220	-	nC
Drain-Source Body Diode Characteristics							
Diode Forward Voltage ⁴		V _{SD}	I _D = 20A, V _{GS} = 0V	-	-	1.2	V
Continuous Source Current	T _C =25°C	I _S	-	-	-	260	A

Typical Characteristics

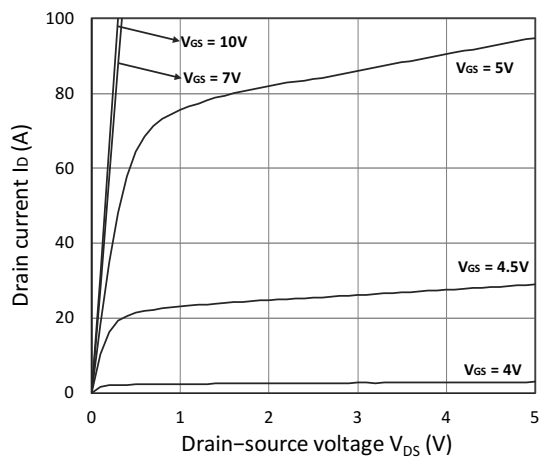


Figure 1. Output Characteristics

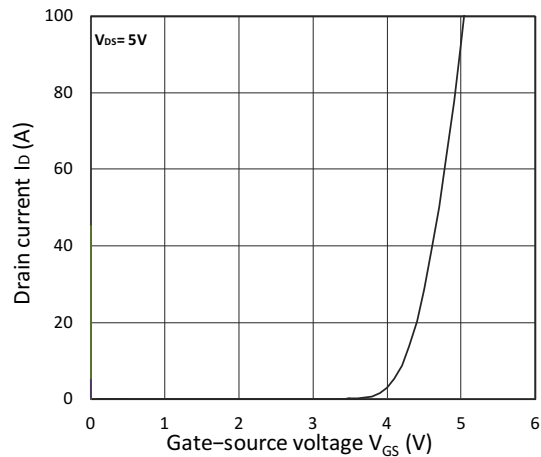


Figure 2. Transfer Characteristics

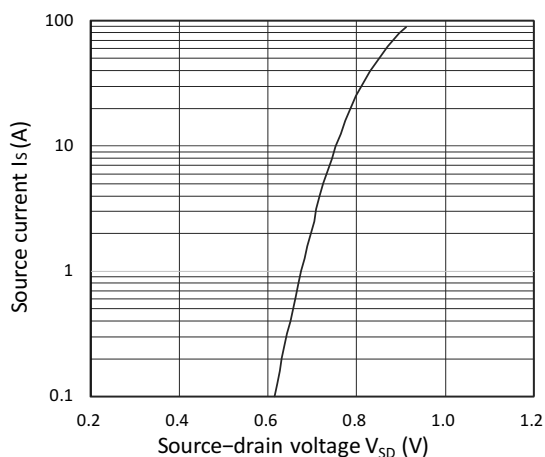


Figure 3. Forward Characteristics of Reverse

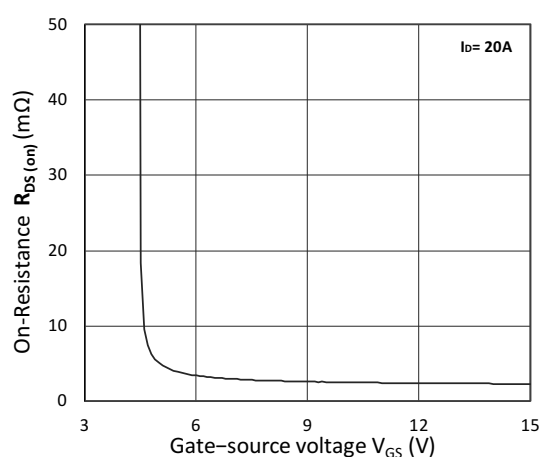


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

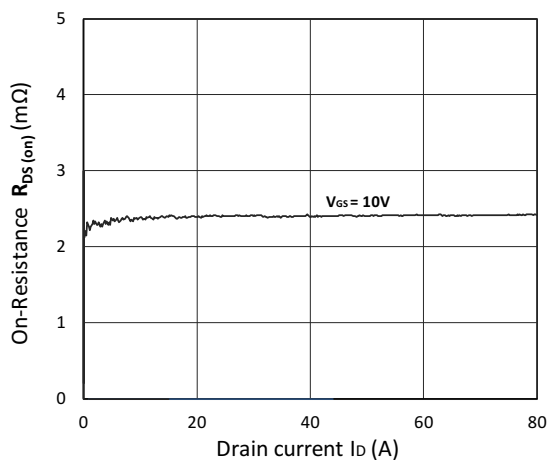


Figure 5. $R_{DS(ON)}$ vs. I_D

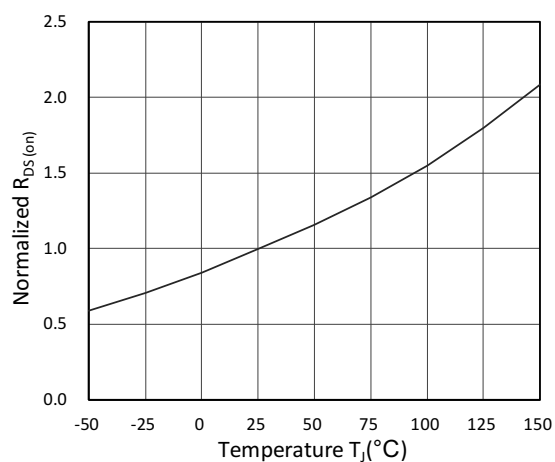


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

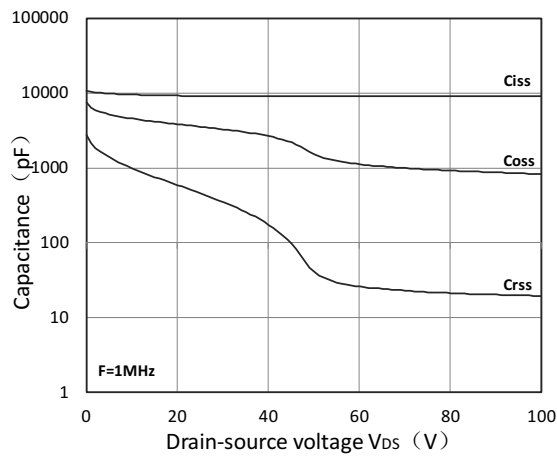


Figure 7. Capacitance Characteristics

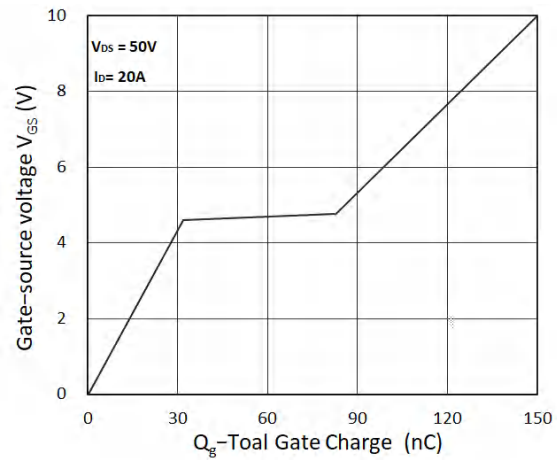


Figure 8. Gate Charge Characteristics

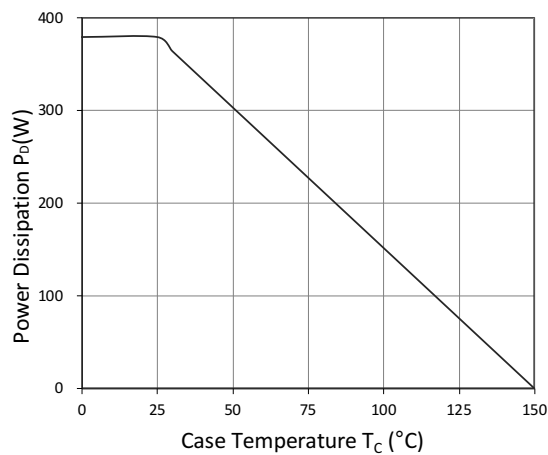


Figure 9. Power Dissipation

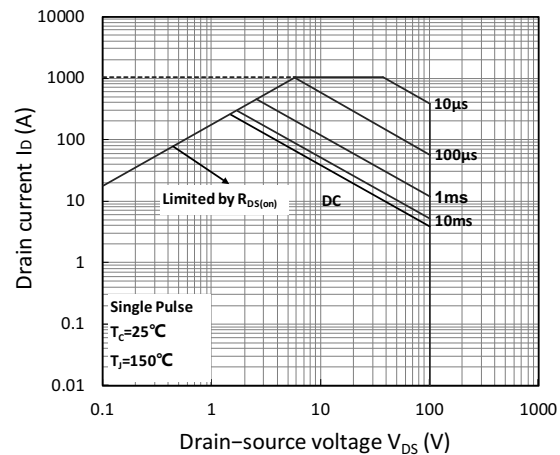


Figure 10. Safe Operating Area

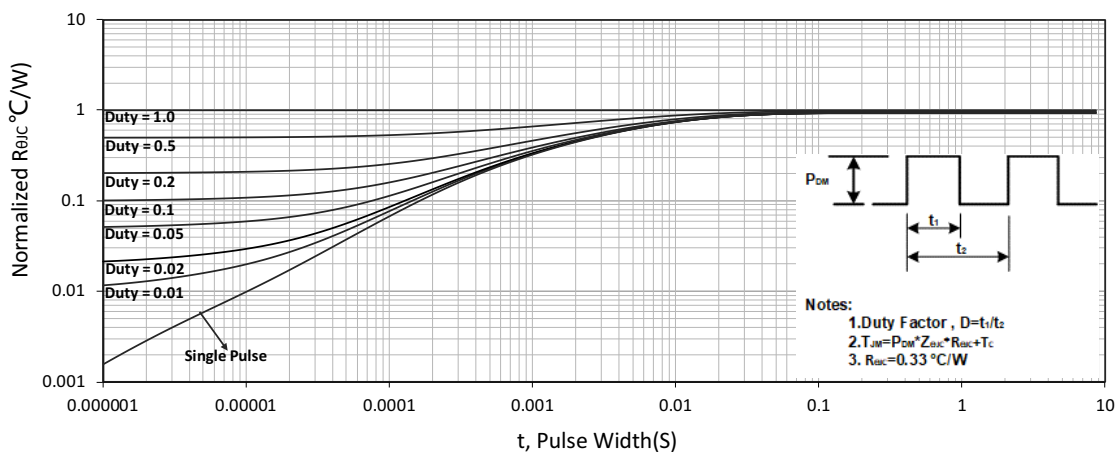
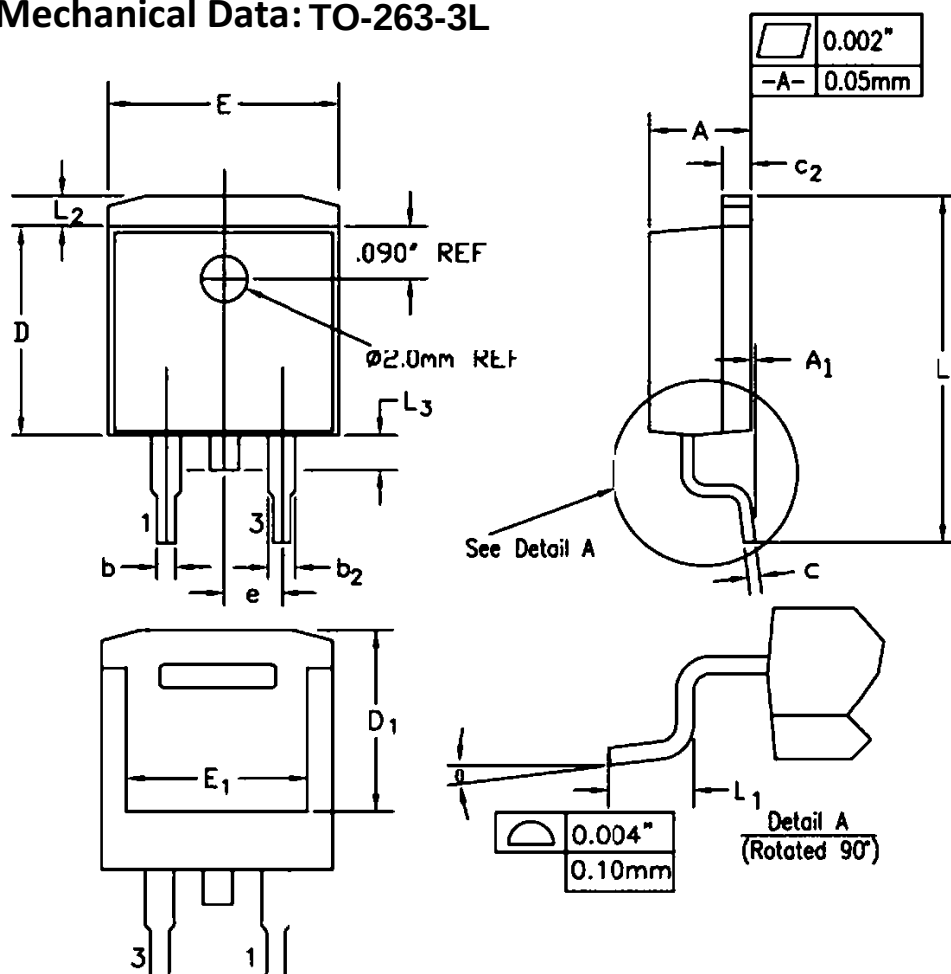


Figure 11. Normalized Maximum Transient Thermal Impedance

Package Mechanical Data: TO-263-3L



SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN	MAX	MIN	MAX	
A	0.170	0.180	4.32	4.57	
A1	-	0.010	-	0.25	
b	0.028	0.037	0.71	0.94	
b2	0.045	0.055	1.15	1.40	
c	0.018	0.024	0.46	0.61	
c2	0.048	0.055	1.22	1.40	
D	0.350	0.370	8.89	9.40	
D1	0.315	0.324	8.01	8.23	
E	0.395	0.405	10.04	10.28	
E1	0.310	0.318	7.88	8.08	
e	0.100 BSC.		2.54 BSC.		
L	0.580	0.620	14.73	15.75	
L1	0.090	0.110	2.29	2.79	
L2	0.045	0.055	1.15	1.39	
L3	0.050	0.070	1.27	1.77	
θ	0°	8°	0°	8°	

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