

Feature

- High density cell design for lower R_{dson}
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high EAS
- Excellent package for good heat dissipation

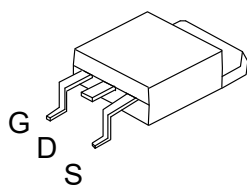
Application

- Power switching application
- Hard switched and High frequency circuits
- Uninterruptible power supply

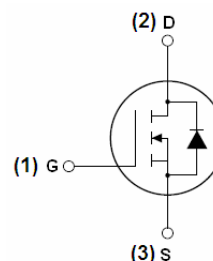


Product Summary

V_{DS}	100	V
$R_{DS(on),Typ@ V_{GS}=10V}$	31	m Ω
I_D	33	A



TO-263



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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	33	A
Drain Current-Pulsed (Note 1)	I_{DM}	132	A
Maximum Power Dissipation($T_C=25^\circ\text{C}$)	P_D	70	W
Single pulse avalanche energy(Note 2)	E_{AS}	96	mJ
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 175	$^\circ\text{C}$

Thermal Characteristic

Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	1.15	$^\circ\text{C/W}$
Thermal Resistance,Junction-to-Ambient(PCB mount)	$R_{\theta JA}$	40	$^\circ\text{C/W}$

**Electrical Characteristics (T_C=25°C unless otherwise noted)**

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	100	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V	-	-	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
On Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	1.6	2.4	V
Drain-Source On-State Resistance ^(Note 3)	R _{DS(ON)}	V _{GS} =10V, I _D =12A	-	31	35	mΩ
		V _{GS} =4.5V, I _D =12A	-	33	45	
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =15A	-	11	-	S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1.0MHz	-	2300	-	pF
Output Capacitance	C _{oss}		-	215	-	pF
Reverse Transfer Capacitance	C _{rss}		-	195	-	pF
Switching Characteristics ^(Note 4)						
Turn-on Delay Time	t _{d(on)}	V _{DD} =50V, I _D =20A, V _{GS} =10V, R _{GEN} =10Ω	-	29	-	nS
Turn-on Rise Time	t _r		-	13	-	nS
Turn-Off Delay Time	t _{d(off)}		-	58.2	-	nS
Turn-Off Fall Time	t _f		-	13.4	-	nS
Total Gate Charge	Q _g	V _{DS} =80V, I _D =20A V _{GS} =10V	-	55	-	nC
Gate-Source Charge	Q _{gs}		-	15	-	nC
Gate-Drain Charge	Q _{gd}		-	20	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =20A	-	-	1.2	V
Reverse Recovery Time	T _{rr}	T _j =25°C, I _F =10A, di/dt=100A/μS ^(note3)	-	58	-	nS
Reverse Recovery Charge	Q _{rr}		-	110	-	nC

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. E_{AS} condition :T_j=25°C, V_{DD}=50V, V_{GS}=10V, L=0.5mH, R_g=25Ω
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production.



Characteristics Curves

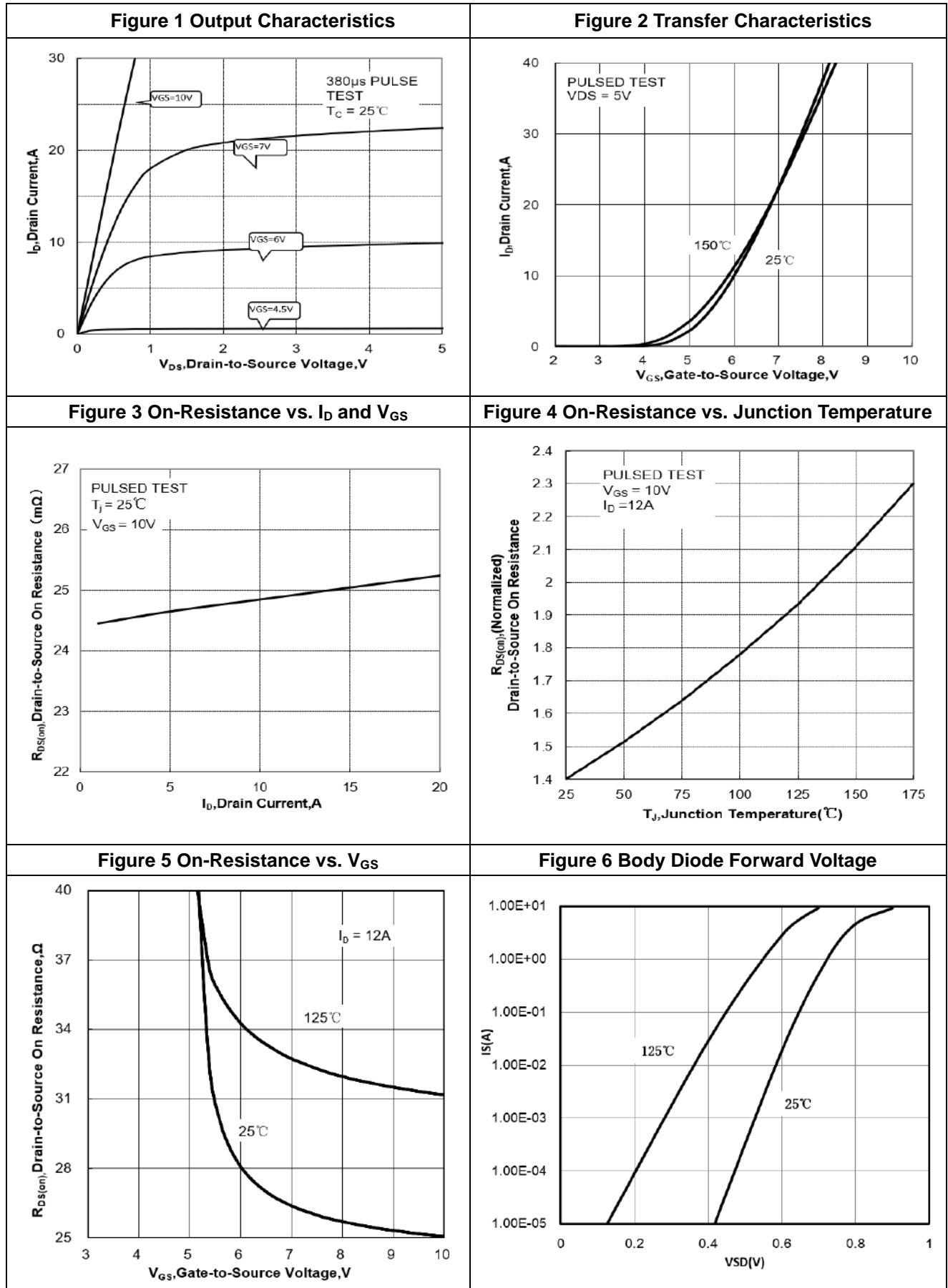




Figure 7 Gate-Charge Characteristics

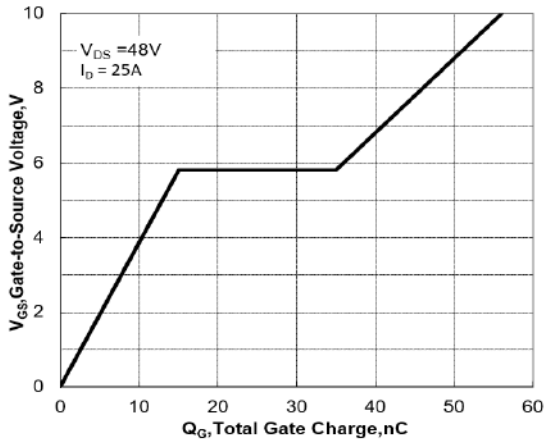


Figure 8 Capacitance Characteristics

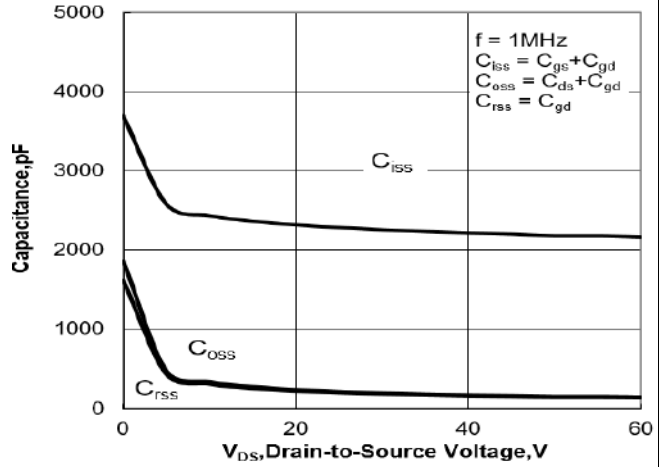


Figure 9 Maximum Forward Biased Safe Operation Area

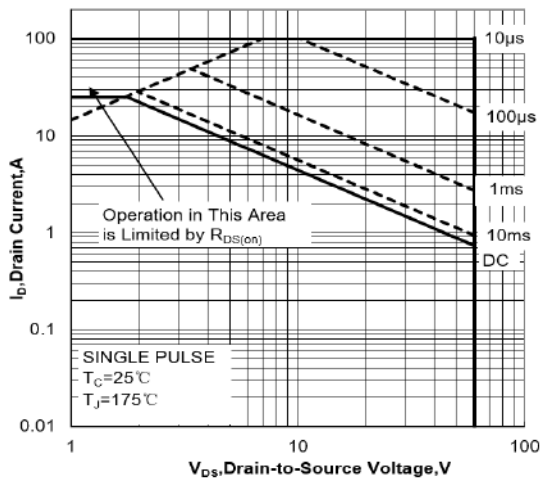


Figure 10 Single Pulse Power Rating Junction-to-Ambient

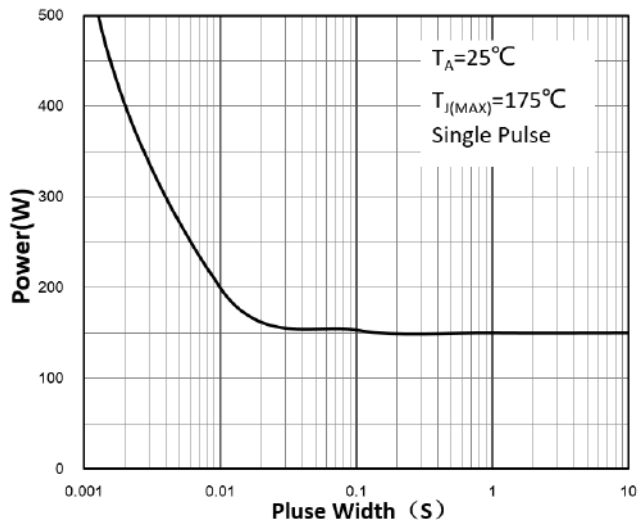
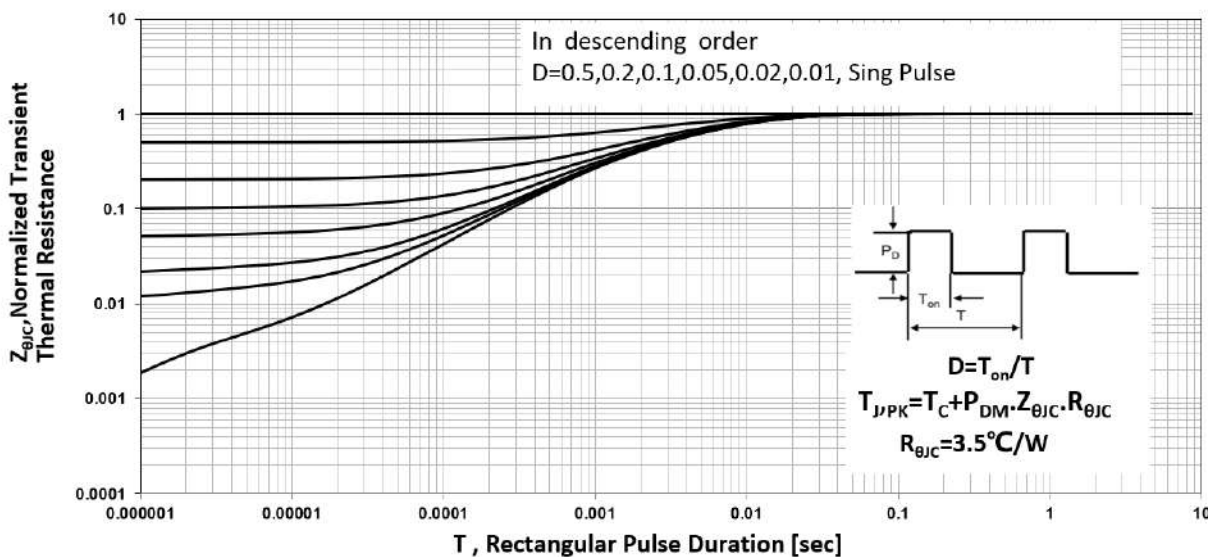


Figure 11 Normalized Maximum Transient Thermal Impedance





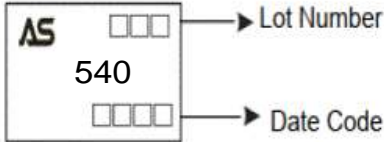
Test Circuit and Waveform

<p style="text-align: center;">Gate Charge Test Circuit</p>	<p style="text-align: center;">Gate Charge Test Waveform</p>
<p style="text-align: center;">Resistive Switching Test Circuit</p>	<p style="text-align: center;">Resistive Switching Test Waveforms</p>
<p style="text-align: center;">Unclamped Inductive Switching (UIS) Test Circuit</p>	<p style="text-align: center;">Unclamped Inductive Switching (UIS) Test Waveforms</p>
<p style="text-align: center;">Diode Recovery Test Circuit</p>	<p style="text-align: center;">Diode Recovery Test Waveforms</p>



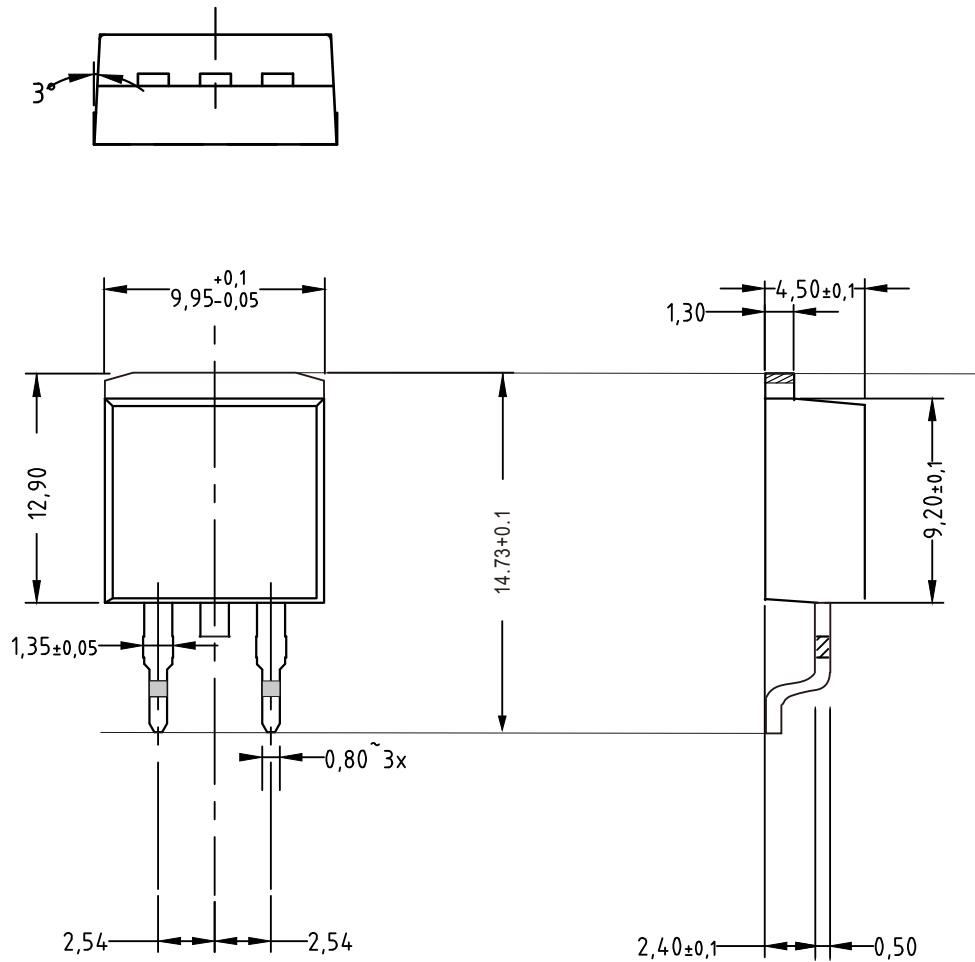
Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
ASDM540G-R	540	TO-263	Tape&Reel	800/Reel

PACKAGE	MARKING
TO-263	



TO-263



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