

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

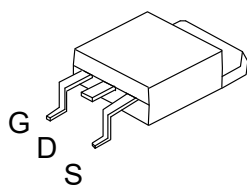
Application

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

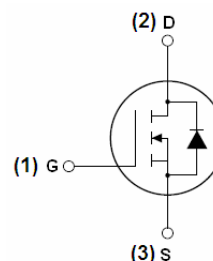


Product Summary

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



TO-263



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	$^\circ\text{C/W}$



Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	100	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.6	2.4	V
Drain-Source On-State Resistance ^(Note 3)	$R_{DS(on)}$	$V_{GS}=10V, I_D=12A$	-	31	35	m Ω
		$V_{GS}=4.5V, I_D=12A$	-	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	$t_{d(on)}$	$V_{DD}=50V, I_D=20A,$ $V_{GS}=10V, R_{GEN}=10\Omega$	-	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}	$T_j=25^\circ C, I_F=10A, di/dt=100A/\mu S$ ^(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 : $T_j=25^\circ C, V_{DD}=50V, V_{GS}=10V, L=0.5mH, R_g=25\Omega$
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production.



Characteristics Curves

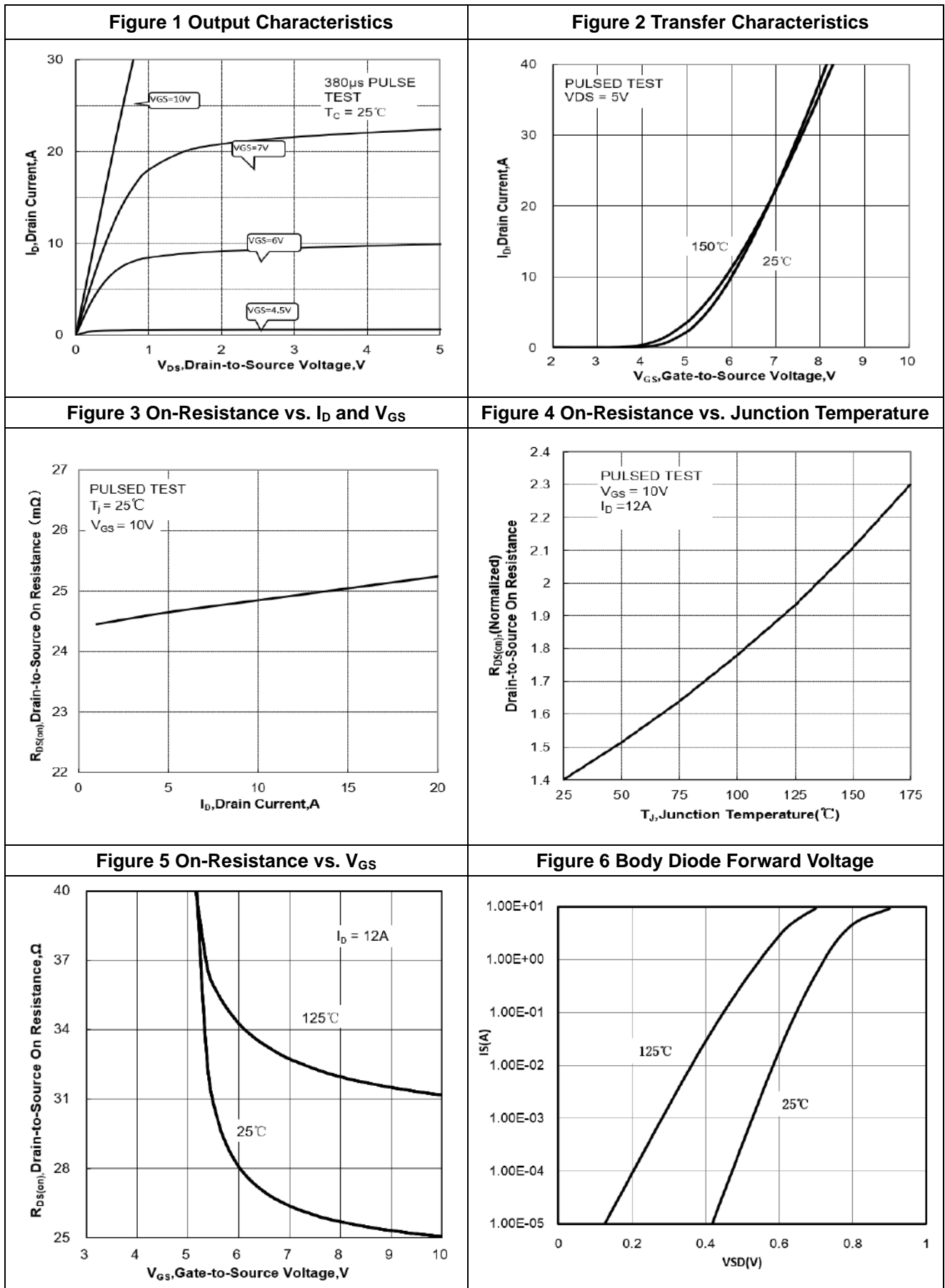




Figure 7 Gate-Charge Characteristics

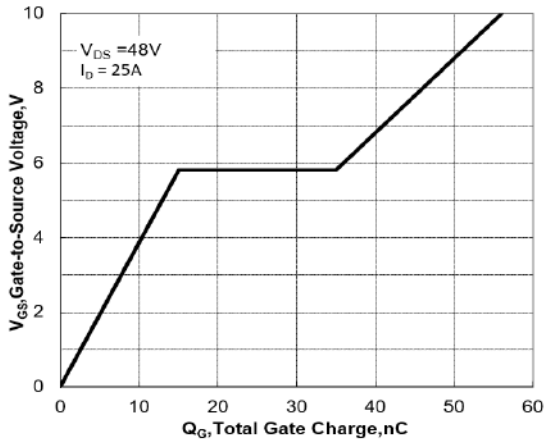


Figure 8 Capacitance Characteristics

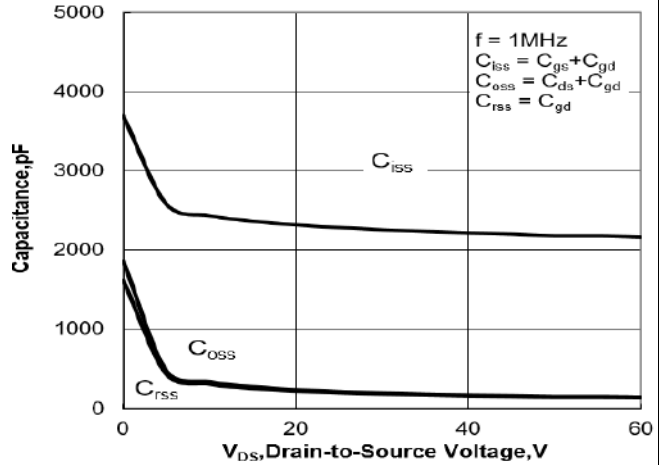


Figure 9 Maximum Forward Biased Safe Operation Area

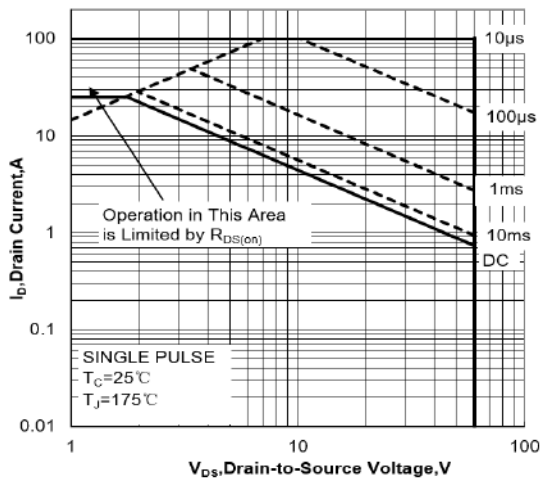


Figure 10 Single Pulse Power Rating Junction-to-Ambient

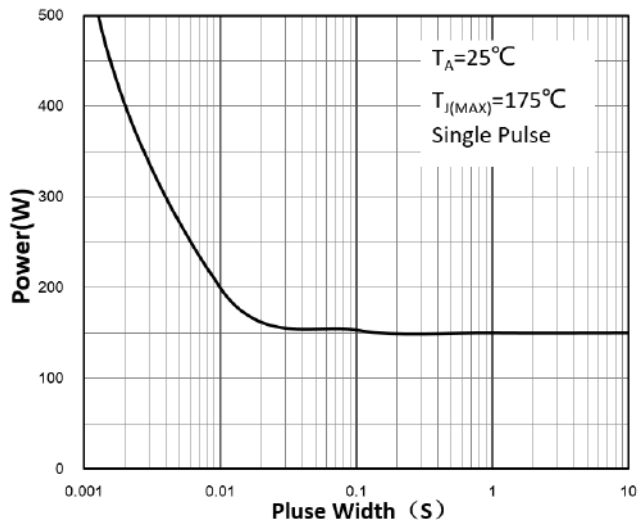
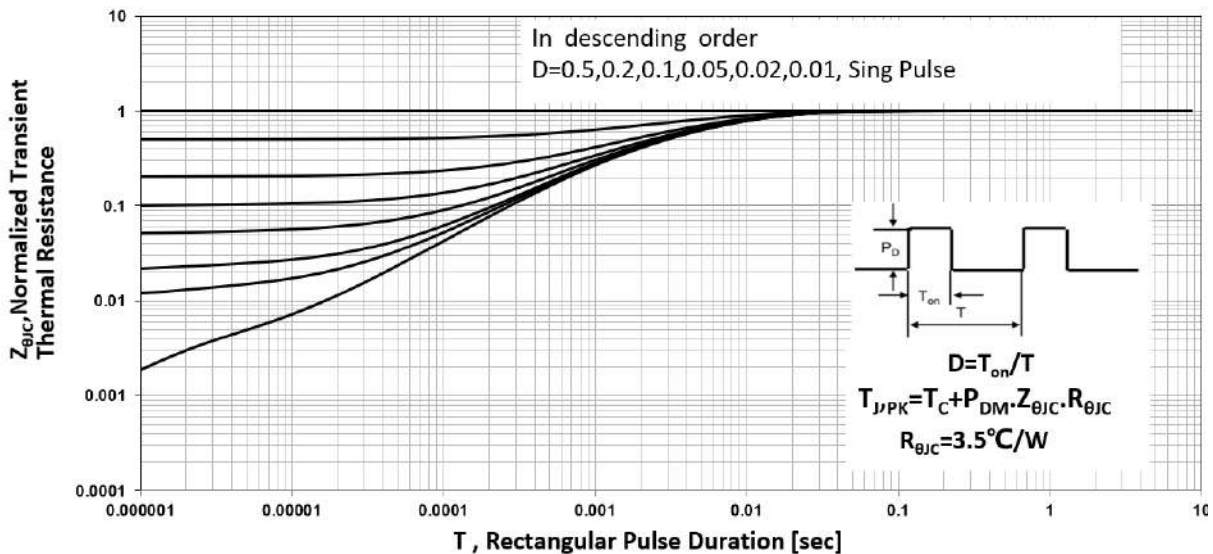


Figure 11 Normalized Maximum Transient Thermal Impedance





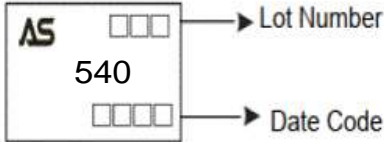
Test Circuit and Waveform

Gate Charge Test Circuit	Gate Charge Test Waveform
Resistive Switching Test Circuit	Resistive Switching Test Waveforms
Unclamped Inductive Switching (UIS) Test Circuit	Unclamped Inductive Switching (UIS) Test Waveforms
Diode Recovery Test Circuit	Diode Recovery Test Waveforms



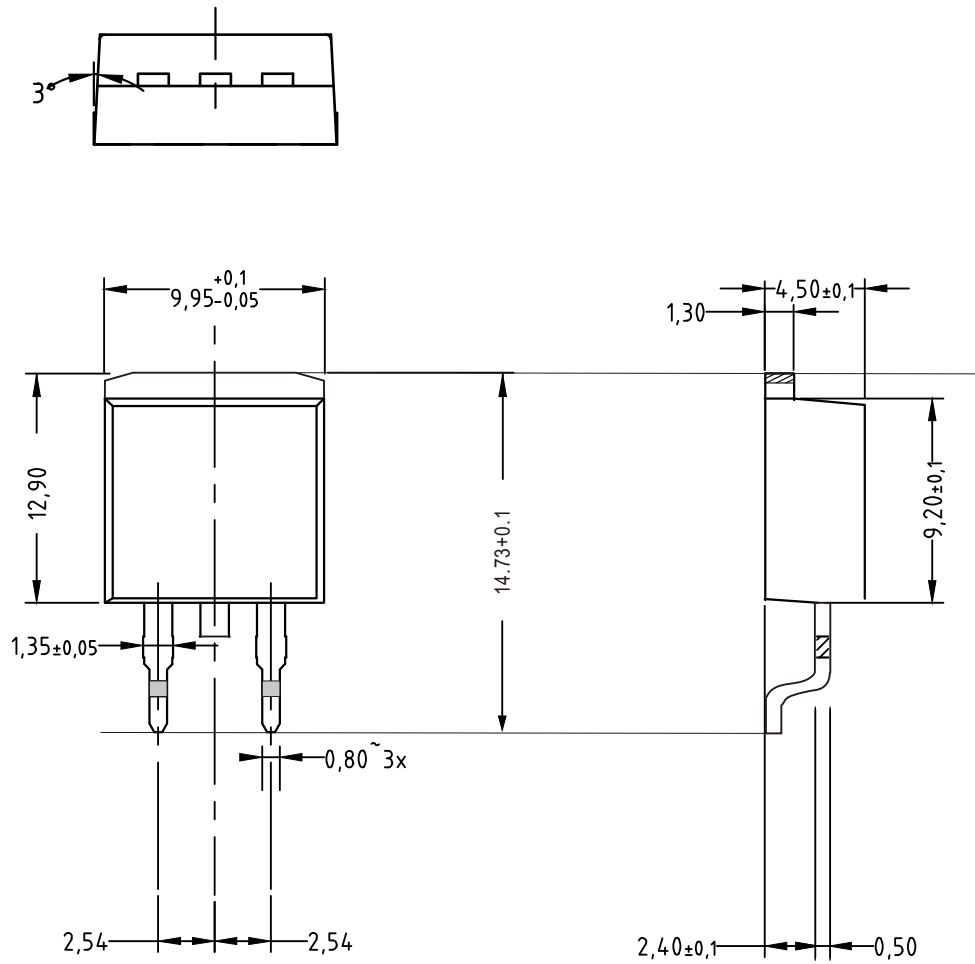
Ordering and Marking Information

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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