

Feature

- Fast switching
- 100% avalanche tested
- Improved dv/dt capability

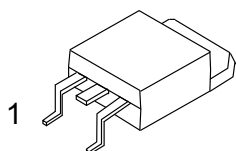


Product Summary

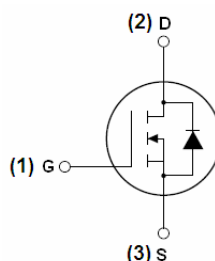
V_{DS}	200	V
$R_{DS(on), Typ @ V_{GS}=10 V}$	0.13	Ω
I_D	18	A

Application

- Switch Mode Power Supply (SMPS)
- Uninterruptible Power Supply (UPS)
- Power Factor Correction (PFC)



TO-252



Absolute Maximum Ratings $T_C = 25^\circ\text{C}$, unless otherwise noted

Parameter	Symbol	Value	Unit
		TO-252	
Drain-Source Voltage ($V_{GS} = 0V$)	V_{DSS}	200	V
Continuous Drain Current	I_D	18	A
Pulsed Drain Current (note1)	I_{DM}	72	A
Gate-Source Voltage	V_{GSS}	± 20	V
Single Pulse Avalanche Energy (note2)	E_{AS}	262.7	mJ
Avalanche Current (note1)	I_{AS}	7.3	A
Repetitive Avalanche Energy (note1)	E_{AR}	157.62	mJ
Power Dissipation ($T_C = 25^\circ\text{C}$)	P_D	104	W
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55~+150	$^\circ\text{C}$

Thermal Resistance

Parameter	Symbol	Value	Unit
		TO-252	
Thermal Resistance, Junction-to-Case	R_{thJC}	1.5	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Ambient	R_{thJA}	60	

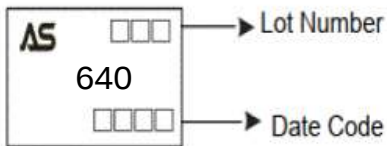
Specifications T _J = 25°C, unless otherwise noted						
Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	200	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 200V, V _{GS} = 0V, T _J = 25°C	--	--	1	μA
Gate-Source Leakage	I _{GSS}	V _{GS} = ±20V	--	--	±100	nA
Gate-Source Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	2.0	3.0	4.0	V
Drain-Source On-Resistance (Note3)	R _{DS(on)}	V _{GS} = 10V, I _D = 9A	--	0.13	0.15	Ω
Dynamic						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 25V, f = 1.0MHz	--	902	--	pF
Output Capacitance	C _{oss}		--	121	--	
Reverse Transfer Capacitance	C _{rss}		--	53	--	
Total Gate Charge	Q _g	V _{DD} 160V, I _D = 18A, V _{GS} = 10V	--	38	--	nC
Gate-Source Charge	Q _{gs}		--	6	--	
Gate-Drain Charge	Q _{gd}		--	16	--	
Turn-on Delay Time	t _{d(on)}	V _{DD} = 100V, I _D =18A, R _G = 25 Ω	--	40	--	ns
Turn-on Rise Time	t _r		--	33	--	
Turn-off Delay Time	t _{d(off)}		--	166	--	
Turn-off Fall Time	t _f		--	60	--	
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I _S	T _C = 25 °C	--	--	18	A
Pulsed Diode Forward Current	I _{SM}		--	--	72	
Body Diode Voltage	V _{SD}	T _J = 25°C, I _{SD} = 9A, V _{GS} = 0V	--	--	1.4	V
Reverse Recovery Time	t _{rr}	V _{GS} = 0V,I _S = 18A, di _F /dt =100A /μs	--	182	--	ns
Reverse Recovery Charge	Q _{rr}		--	1.29	--	μC

Notes

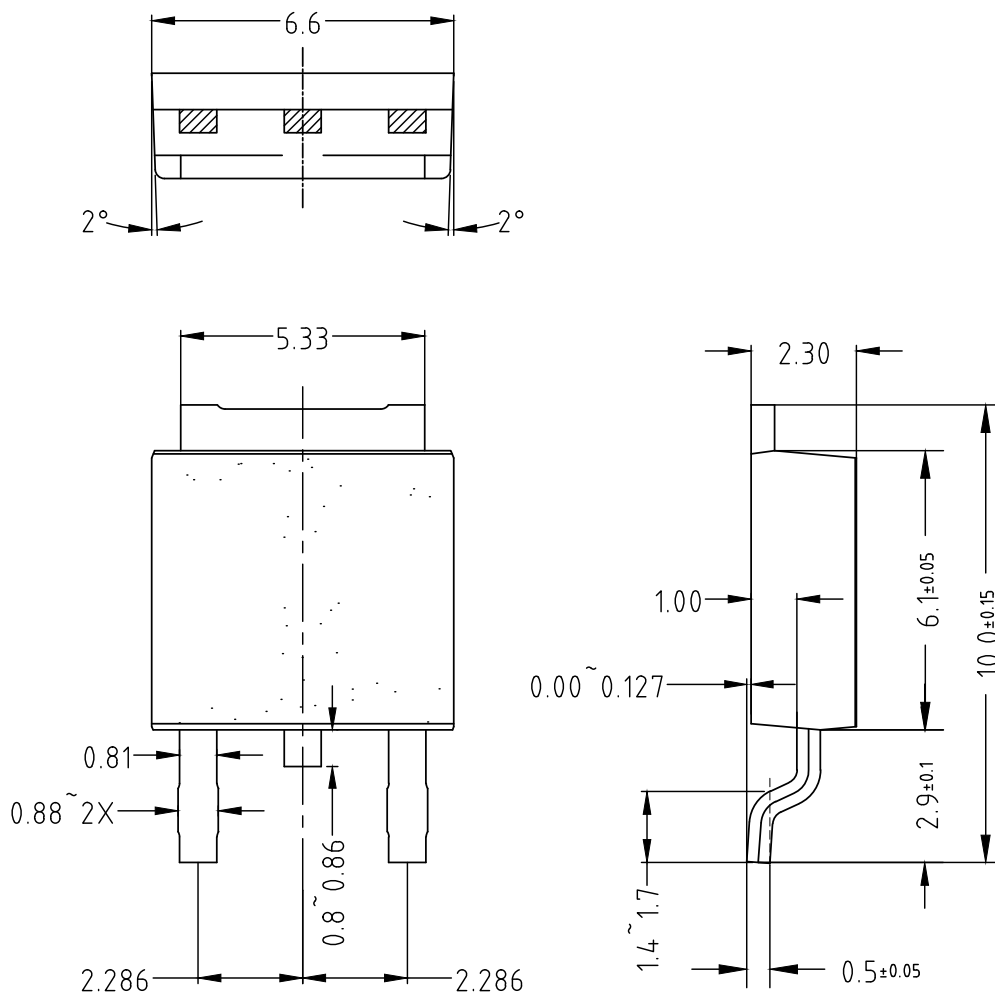
1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. $I_{AS} = 15A, V_{DD} = 50V, R_G = 25\Omega$, Starting $T_J = 25^{\circ}\text{C}$
3. Pulse Test: Pulse width $\leq 300\mu s$, Duty Cycle $\leq 1\%$

Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
ASDM640KQ-R	640	TO-252	Tape&Reel	2500/Reel

PACKAGE	MARKING
TO-252	 The diagram shows a TO-252 package with the following markings: 'AS' in the top left, '640' in the center, and two sets of four empty boxes (one above and one below '640'). Arrows point from the top set of boxes to 'Lot Number' and from the bottom set of boxes to 'Date Code'.

TO-252



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